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Computer Weekly

Thursday, August 19, 1982

Price war threat as micro stocks pile up

by Kevin Cahill
A MAJOR price war is threatening high street micro vendors as stocks pile up in distributors' warehouses.

Already Apple has cut £300 off the price of the Apple II in a bid to stimulate sales, and Tandy has followed with a £200 drop on the TRS80.

But distributor-led price cuts are likely to be rapidly exceeded by the dealers themselves as they fight for a bigger slice of the market.

At a recent seminar, former Apple European vice-president Tom Lawrence gave figures which showed European sales of micros generally rising by over 68% in value between 1981 and 1982.

The figures showed sales in 1981 at \$380 million, rising to \$640 mil-

lion for the whole of 1982, with Apple increasing its share of the European market from 26% in 1981 to 29% in 1982.

These percentage figures mean that Apple's European revenues have risen from \$98.8 million in 1981 to \$185.6 million for 1982.

The departure of Lawrence, following hard on the heels of the company's manufacturing director in Cork, Alec Wrafter, has been accompanied by suggestions that these targets are not being met.

But Apple is far from being the only company beguiled into over-commitment by over-optimistic sales forecasts, and companies are now battling for market share.

The Office International Group in London signed an ambitious

deal to be the launch distributor for Toshiba's 8-bit T200 micro.

Roger Eden, the company's general manager, says that the market is soft but no softer than they expected. Many companies have still not found out who they are trying to sell to, he says, and stocks are accumulating at the dealers.

"The current recession is sorting the men from the boys, but we are confident that the strategy we have developed will give us a good market share," he added.

In the South-west, Don Martin of Exleigh Business Systems says that the last two months have been very quiet.

A spokesman at Tandy said that growth overall for 1982 was around 60% "but it is getting very competitive at the lower end."

Computer scoops govt with Finance Act text

by Kevin Pearson
A COMPUTER-based legal information system has beaten the government's official communications channel to the market with a full text version of the 1982 Finance Act.

Lexis, a legal search and retrieval system had its up-to-date version of the Act, which details the legislative changes made in the Budget, available to subscribers exactly a week after it became law on July 30.

Not even Her Majesty's Stationery Office, HMSO, which publishes all UK legislation and government reports, could match this.

The Finance Act is the legal form of the Budget, given to Parliament by the Chancellor of the Exchequer Sir Geoffrey Howe, in April. However, between April

and the granting of the Royal Assent, the Finance Act undergoes many changes. Lexis had to keep fully informed on the Act and its passage through Parliament, in order to put the version out before the HMSO's official version.

Lexis is a subscription only, dedicated service covering all legal cases, and UK legislation. It is based on two Amihai computers located in Ohio. The computers are also used to provide a similar, but much larger service to the US and a third specially built Amihai is shortly to be added to the installation.

According to Kyle Bosworth, who manages Lexis in the UK, the system takes only 16 seconds to calculate the number of times a particular word is used in the 48,000 reported cases in the Gen-



Howe's words on disc.

eral English system. The system has over 2,000 trained users in the UK.

Cost of using the system are £250 monthly subscription, with an online use charge of £1.20 a minute and £18 an hour search fee.

Political hitch delays plans for London 'technopark'

by Nicholas Enteknap
THE Prudential Assurance Company's plans for a "technopark" in South London have struck a political hitch.

The new Southwark Borough Council, elected in May with a mandate to provide more family housing, has rejected the plans accepted by the previous Council and is putting forward alternative plans of its own.

The idea for the technopark was jointly developed by the Pru and the South Bank Polytechnic. The idea is for a three-storey, 50,000 square foot building housing some 70 start-up companies specialising in high technology products.

The building would physically adjoin the Polytechnic, thus providing the companies with

access to the Polytechnic facilities, including in particular expertise in the formulation of business plans and access to venture capital.

The space was available, as there is a derelict bomb site bounded on three sides by Polytechnic buildings and on the fourth side by the London road. This area is officially zoned for housing, however, so permission had to be obtained from the local council, the GLC and the Department of the Environment.

This process took about a year, during which the change of council took place. The Prudential is angry about the Council's change of mind, pointing out that "the project has involved us in almost a year's detailed outline planning, plus management time."

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Acceptance of the Sirius 1 seen as a boost for the machine.

Currys takes on the Sirius 1 — but software trails behind

by Robert Parry
HIGH flier among the new breed of 16-bit business microcomputers, the ACT Sirius 1, has been taken on by high street micro retailer Currys Micro-C. But the right software for the machine is still trailing behind the hardware.

The 10 Micro-C stores are now supplying the 16-bit Sirius, joining a dealer list of about 270 that is growing at one a day according to ACT (Sirius) managing director Ed Sherman. He sees Currys acceptance of the Sirius as a boost.

"It is a mark of respect for the machine," he says, "and will certainly help us to get a couple of other big dealers."

Currys has a careful approach to

picking micros to add to its range, and has rejected more than three quarters of the machines it has tested. The Sirius hardware was fine — "I don't hear the engineers complaining about it," says commercial director Derrick Clarke — and Currys has already shipped more than 20 machines.

But these have been mainly to "computer people", who will write their own software. "I am short of software packages for the Sirius," Clarke says, and he feels this might hit sales to businesses wanting packaged solutions to business problems.

The main stumbling block at present is the accounting packages. Currys has gone with Syntac-

notics software on Apple system and Spectrum for Commodore. Neither runs on the Sirius.

"It would be a big cost for a organisation like ours to buy changing software, with so many people to re-educate. We couldn't afford it," says Clarke.

But built the Systems and Spectrum software is being converted to run on the Sirius, and should be ready next month. Then Clarke hopes to make do with packages that Currys has little experience of supporting. These include MicroModeller and SuperCalc.

Currys is still casting around for further 16-bit micros to add to its stable.

ICL makes it £60 million in PAYE coup

by Kevin Pearson
ICL has pulled off an amazing £60 million double with the Inland Revenue by winning the £20 million contract to supply 18,000 terminals for the PAYE computerisation project. The company was given the contract to supply 47 mainframes for the system, valued at over £40 million in 1980.

But a potential storm is brewing over the decision. Plessey, one of the two other companies tendering for the deal intends to ask the Inland Revenue how it reached its decision. A spokesman for the company said it was not seeking a reversal, but wants an elaboration on why it did not get the contract.

Ferranti, the other company in the running, refused to comment on the decision. There will no doubt be a few raised eyebrows by the US manufacturers, none of which was involved in the final stages of this tender. The controversy raised when ICL was given the mainframe contract under the government's preferential procurement policy has not died down. IBM was so incensed by that decision

that it issued a statement attacking it, and did not tender for the terminals deal.

Olivetti, the only overseas supplier to be short-listed, withdrew from the battle earlier this year, but would give no reason.

ICL will now supply over 17,700 of its DRS 20 terminals, in addition to 47 2966 mainframes, to the Inland Revenue over the next four years. The first three mainframes are already installed at the Inland Revenue's National Development Centre in Telford. ICL will start to deliver the terminals in September, and will provide the first 400 in the year to September 1983. The remainder will be delivered before 1986, by which time most of the mainframes should be in place.

ICL can be reasonably sure that there will be no GATT (General Agreement on Trade and Tariffs) or EEC investigation into the deal, since only British companies were tendering. The EEC ruling on single tendering came into force in January 1981, barely two months after the government had announced that it had given the

mainframe contract, worth over £40 million, to ICL.

The timing of that decision particularly upset the US manufacturers in view of the fact the EEC had already said that single tendering was to be outlawed when the pro-ICL decision was announced. At the time Burroughs said that the decision was "illogical" since the policy was to be dropped.

In 1980 the project was valued at £150 million, including training, redeployment within Inland Revenue resulting from the project, as well as the hardware and software. It was estimated that £80 million of this would be internal cost to Inland Revenue. The remainder would be split between hardware and software for the system, in roughly equal amounts.

This already looks extremely optimistic as the mainframes and terminals alone will probably cost over £60 million. The external half of the contract could cost over £120 million, about 80% of the original total value of the project. And there is no telling by how much the internal costs will have risen.

Chubb sells Safe stake to City

by Kevin Cahill
SECURITY company Chubb has bowed out of the computer industry by selling a major stake in Safe Computing to a group of City institutions.

With turnover approaching £3.1 million, Safe ran into losses of over £200,000 for 1981/82. The subsequent cash crisis resulted in Chubb converting its loans to Safe into shares and loan stock, bringing £140,000 of new equity into the company via a 21 per cent share sale to United Computers and Technology and two other City institutions.

The losses emerged at the end of one of the company's heaviest investment periods, according to chairman Philip Rule. "Last year we invested substantially in creating the MicroCobol version of Safe's production control package, along with investment in the new Safe package for

ICL's System 25.

"The two events lined up to produce an unfortunate impact on our profitability," according to Rule. The company ended the year to March with losses of over £200,000 and part of the financial restructuring involves the sale of the Safe business to another, unnamed company.

Rule described the business as a "burden" which deflected the company from its main software package business.

The new investment comes in the form of a 21 per cent stake in Safe by venture capital fund United Computers and Technology Holdings, a new City finance institution. UCAT is joined in the investment by two other City institutions.

The Chubb security company, which jointly owned Safe with chairman Philip Rule, has converted Safe's £1 million debts



RULE... "Burden a burden."

to Chubb into a mixture of secured loan stock and redeemable preference shares. Following the restructuring, Rule will own 49.9 per cent of Safe.

The Safe packages, Safe and Safe, have both won international recognition. The Chubb annual report says that the move further reduces Chubb's stake in the computer industry to just a single director on the Safe board.



ELSB... "High standard of applications."

£1 1/2m bonus for software houses

by Maggie McLening
UK software houses have been allocated a £1 1/2 million bonus for development in the last four months.

Since the £10 million cash injection made last April by the Department of Industry, 23 of 32 UK software firms have had their applications for cash accepted under the Software Products Scheme.

The SPS was set up in 1973 by the DoI to stimulate software development in the UK by awarding cash grants to companies producing innovative and exportable products.

After last April the Department appointed an advisory committee drawn from the staffs of National Computing Centre, the Computing Services Association and the DoI to administer its revamped scheme.

Funds for the scheme have been divided into yearly allocations up to 1985, and of the £1 1/2 million awarded since April, £500,000 will be drawn from this year's budget and the rest from the next two years. This leaves a further £1 1/2 million in the kitty to be spent during 1982-3.

"The standard of applications has been very high, as is shown in the range of responses," said David Elsb, NCC scheme manager. "We have been getting a good supply of proposals, most of which are in our preferred areas, and nearly all of which have got what we call 'additionality', meaning that the grant will enable the company to add features that it couldn't otherwise have done."

France slips to fifth place in research

by Jack Gee
FRANCE is lagging in fifth place in the world league for technological research, and impairing the prospects for its computer and electronics industries according to a report just published in Paris by the National Credit Organisation.

France occupied third place ten years ago. It is now behind the US, Britain, West Germany and Japan. It is also the only industrial country in which research has accounted for below 2% of gross national product since 1960. On average the French percentage has hovered around 1.8%.

This compares with 1977 levels of 2.4% for the US, 2.2% for West Germany, 2.1% for Britain and 1.9% for Japan.

The result is that French firms' overseas expenditure on research is half that of Japan and West Germany and six times lower than that of the US.

General Motors spends three times as much on research as the entire French automobile industry, and the Hoechst chemical firm more than the entire industry in France.

National Credit says a major reason for France's poor performance is the fall in the contribution of the public sector whose share of gross national product devoted to research has fallen from 1.53% to 1.05%. This is partly a consequence of a reduction in investment by the Defence Ministry.

Private financing of research by industry rose from 0.63% of GNP in 1968 to 0.75% in 1980 — well below the 1.1% level of Japan and the US.

The French government's objective is to boost expenditure on research from all sources to 2.5% of GNP by 1985.

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It's hard at home — soft in East for ACT

by Robert Parry and Boris Sedacev
BIRMINGHAM-BASED systems house ACT last week found itself with a hardware battle at home as it pulled off a major software deal in Hong Kong.

And both situations revolve around the company's sales of a US-made computer, the Sirius I.

ACT's Hong Kong deal is straightforward. It is to supply software for the Sirius machine to Swire Systems for sale in the Colony.

But in the UK the company finds itself under attack in the market for the Sirius that it started only last November due to a misunderstanding of distribution rights.

From next month two versions of the US-built Sirius I 16-bit micro will be available in the UK: the ACT Sirius I from the established distributor ACT, and the Victor 9000 from DRG Business Machines based in Weston-Super-Mare.

There is no difference between the machines save the packaging. For a dark box go to ACT, for a light one try DRG.

The ACT group has been selling the Sirius here since November last year. It set up a separate company, ACT (Sirius), to handle the product and has a network of about 270 dealers.

DRG has 35 dealers already carrying the Cado microcomputer, and will be using these as the kernel of an expanded dealer network for the Victor 9000.

Until recently ACT believed that it had exclusive distribution rights for the machine in the UK, just as Victor Business Products, Chicago-based offshoot of US industrial conglomerate Walter Kidde, held exclusive rights in the US.

But it turns out that part of the



FOSTER... "We don't see it as a threat."

deal with Victor, which played a large part in funding Sirius Technology Systems, was that Victor had distribution rights in the rest of the world too.

"We would much prefer they weren't coming over here," says ACT's group managing director Roger Foster, "but we don't see it as a threat." He reckons ACT will get new products from Sirius sooner than DRG can via Victor, and that DRG's margins on the machine will be smaller because of the three-link chain, giving ACT more scope on prices.

This view is not shared by DRG's managing director, Michael Kilmartin. "It's way out," he says, pointing out that Victor owns a large chunk of Sirius. He is pricing the Victor 9000

at the same level as the ACT Sirius, £2,395 for the basic system, and does not envisage a discount war.

In Hong Kong ACT recently signed a partnership deal with Swire Pacific, Hong Kong's second-largest industrial group, which is to provide a marketing outlet for ACT software in the Far East.

But Swire Systems, the new company, will not be getting its Sirius machines from ACT. ACT has not put up any equity capital in Swire Systems but has an option to purchase 25% in the future "at an attractive price", according to chairman Lindsay Bury.

ACT will provide the management and know-how about marketing Sirius.

Recession hits the U mainframe makers

by Kevan Pearson

THE European computer market underwent a dramatic reversal in 1981 as the profits of the US mainframe manufacturers came crashing following the depth of the recession and the rise of the dollar on the international exchanges.

The recession caused problems for the home-grown European computer industry too. ICL, Siemens and CII-Honeywell Bull have the same problems currently afflicting Burroughs, NCR and Honeywell: falling demand for large and expensive mainframe computers.

Even the might of IBM, still in first place, was humbled with a fall in sales.

The star in the massed American ranks is, predictably, Digital Equipment, which grew in Europe in the last financial year by 38%, compared with a 6% downturn in sales for IBM.

On the UK side ICL passed the post with a 5% sales drop, less than expected, and boding well for the future. But the real performer on the UK side must be Ferranti Computer Systems which, despite the dire economic strains of the UK economy, managed to show growth of 29%, against Plessey's estimated growth of under 10%.

But General Electric Company, which had a record year again, does not figure at all in the top 25 European computer companies. Its computer systems division is rumoured to be in difficulties, though its 4000 series machines are said to be very good products. They have the misfortune to be linked with the less than successful Prestel debacle which does their market image no good.

The other rising star of the European scene (as well as being a darling of the Wall Street analysts) is Wang with 34% growth in

Europe in dollar terms, an impressive overall growth of 50% a year.

The big unknown is European equation is CII-Honeywell, which has been recently nationalised by the French government, with Honeywell stake dropping from 47% to 33%. CII-HB's losses have been more dramatic than were expected before Laidlaw and Winter plied their particular brand of disinformation.

One thing is sure, CII-HB not hold second place in the European Top 25 another year.

DEC is challenging Wang and is at last beginning to reap US success in Europe. It is soon move into second place in Europe, which would make it the world's second largest computer manufacturer, the position ready occupies in the US.

Honeywell wins big Scots office project

by Andrew Thomas

SCOTLAND'S first large-scale office automation project has been given the go-ahead by Strathclyde Regional Council. Honeywell DPS 6 minicomputers will provide the authority's 115,000 employees with word processing and electronic mail facilities, and the system is to be implemented in conjunction with the Department of Industry.

The two-year pilot scheme comes at a time when Honeywell is consolidating its Scottish presence. Glasgow City Council is to implement a major upgrade on its Level 66 installation, and most of the major distilleries, Aberdeen and Dundee Universities, Lothian Police and a number of local

authorities use Honeywell hardware.

Honeywell has long had a major manufacturing plant for DPS 6 and DPS 8 systems at Newhouse, Lanarkshire, employing 1,500 staff. A new sales office in the centre of Glasgow was opened by UK managing director Brian Long last week.

"I am delighted that the growth of Honeywell business in Scotland makes it not only possible but necessary to expand our capacity for serving the market," said Glasgow branch manager Archie Scott.

"I hope theipples of our success will help to encourage an increasing measure of restored business confidence and economic recovery in this country."

£257m of loans save AEG

by Kevan Pearson
THE short-term future of Germany's stricken electronics giant AEG Telefunken, is secured following an agreement last week with its bankers to provide £257 million of loans.

The banks had previously over a month about how to rescue their share of the government rescue package. They have agreed to the terms on the condition that the West German government comes up with loan guarantees.

The banks will provide 65% of the cash immediately, the other 35% only when the government has agreed to their terms. These loan guarantees would in addition to the export guarantees the government has already granted to AEG.

However, the loans will provide only a temporary lifeline to a company which earlier this month went into a form of suspended liquidation to avoid bankruptcy. The price for the banks' cooperation is that the company go ahead with its drastic restructuring plan. This will include selling AEG's loss-making consumer business, and reorganisation of electronics and capital goods operations.

Such moves are likely to result in massive redundancies. The company employs about 50,000 people and redundancies could be as high as 20,000.

Telecom users fight back on price rises

by Nicholas Enticknap

STRONG opposition to British Telecom's proposed November price increases has come from the Telecommunications Users' Association. The organisation has sent a detailed critique of British Telecom's proposals to the Secretary of State for Industry, Patrick Jenkin.

The TUA does not mince its words: "The British Telecom case is short on facts and long on platitudes — mostly old platitudes at that."

Its case is essentially based on two points: that British Telecom gained far more from its last price rise than it anticipated, and so does not need any extra revenue; and that its justification in terms of the competition it is now facing is unsound.

On the first point, the TUA points out that British Telecom's price rise last year cost its customers 6% more than it forecast. It contrasts this unfavourably with the corporation's estimated change

in the Retail Price Index, over which it had no control but which it nonetheless got right to within one per cent.

It also points out that British Telecom is currently carrying out a campaign to cut costs, with target savings of 8% in the current financial year and 10½% next year. No details of the results of this exercise have been published, it says.

Putting these two gains together, it estimates that British Telecom is at least £400 million better off than expected, and more likely over £450 million up. From this it concludes that the "justification for the current tariff increases needs to be more detailed than set out in the sketchy text accompanying the figures".

The TUA's second point concerns British Telecom's justification for the increases on the grounds that it is now facing competition. Pointing out that the only competition is coming from Project Mercury, which has yet to

Wang to create 500 more jobs in Eire

by Robert Parry
ONE of the leading US office automation computer companies, Wang Laboratories, is to double the size of its Irish factory. Over the next three years it plans to create 500 jobs at the Limerick plant, bringing the number employed there to about 800.

"The Wang philosophy is to grow to about 1,000 people per unit, at a controlled rate," says Pat Sweeney, Wang's vice-president for international manufacturing. "We have the right products and sales force, and I am quite certain we will keep manufacturing busy, recession or no recession."

The expansion in Limerick

marks the second phase of Wang's \$33 million investment in Ireland. The company set up there in early 1980 with the support of the Irish Industrial Development Authority (IDA) and manufactures the OIS range of office automation products in its automated factory.

The output goes mainly to Europe, one-third being taken by the UK. "The manufacturing aim is to serve the marketplace," says Sweeney, and the range of equipment manufactured in Limerick for Europe is being extended to include the US range of minis, which is "going great guns" according to Wang's UK managing director, Ian Dier.

Local manufacture implies local sourcing of components for Wang. So far European manufactured parts make up nearly half, by dollar value, of Limerick-built equipment, and Sweeney expects this to grow to 80% over the next two years.

He also indicates that some software research and development work may move over from the US. "Some of the basic stuff needs to be Europeanised," he says, "and this is currently done back in the US. Perhaps it should be developed centrally, then flavoured locally."

The IDA is encouraged by this continued commitment from "one of the stars in our firmament," as project manager John Lloyd puts it. Wang is one of many US computer companies to have located manufacturing plants in Ireland. The list includes DEC, Amdahl, Prime and Apple along with Japanese and European companies — and employs a high proportion of Irish graduates.



SWEENEY... "We will keep manufacturing busy."

Subsidies for UK software firms at Japan exhibition

SOFTWARE companies interested in visiting Japan during the Japan Software Industry Association annual software exhibition in October can, if they hurry, have the cost of their trip subsidised. The British Overseas Trade Board (BOTB) has agreed, under the auspices of the government's IT82 organisation, to contribute £710 towards the costs of companies interested in presenting their products at the British Export Marketing Centre during the exhibition.

The BOTB grant leaves the companies involved about £1,250 to find. To obtain it, they should contact Export IT no later than September 6 and as soon as possible. Only 12 places are open, and of these four have been filled. Companies that go will not only be able to exhibit their own products and visit the Japanese exhibition. The British Embassy in Tokyo has agreed to provide facilities for presentation, including interpreting, that will enable companies to talk to their Japanese counterparts, and will also arrange visits to Japanese companies.

Five former managers of Software Sciences buy the unsold 'rump'

by Nicholas Enticknap

THE industrial high technology rump of systems house Software Sciences was bought last week by its managers.

A new company has been formed to take over the computer-aided engineering operations. Known as Tangram Computer Aided Engineering Ltd, the new company was set up by five former SSL managers with the aid of cash from the British Technology Group and backing from Barclays Bank.

Tangram, which aims to sell CAD/CAM products to small and medium-sized engineering companies, is based in Daventry and has been run by the five managers since April, when the bulk of SSL was sold by BOC to Thorn-EMI. Negotiations relating to the funding of the new company have just been completed.

The five managers, all engineering graduates, are Graham Bennett, Bill Cargill, David Ferrer, Henry Merryweather and Martin Squires, who joined SSL a year ago from Systime and has been named managing director. Between them they have put up

£50,000 for a 62½% stake in the company.

Other Tangram employees own a further 12½%, while the remaining 25% is owned by BTG. The group has put in a total of £115,000 in ordinary and preference shares, and is planning to invest a further £75,000 in loan stock once Tangram has established itself. Barclays is providing loan facilities of £150,000.

According to Bill Cargill, "The direction of the company has changed to some extent in the four months we've been in our own".

Tangram has also inherited two software products from SSL. They are Swift II, a mechanical components design and drafting aid, and PS2000, a control system for machines cutting flat plate.

The company's choice of name is imaginative. Tangram is the name of a Chinese puzzle, rather like a jigsaw, except that the pieces can be put together in a variety of ways. This, says Cargill, illustrates the way the company can put together a variety of products to make a system tailored to a particular customer's needs.



JENKIN... Price increase proposals under fire.

prove itself and even if it does only take away a tiny fraction of British Telecom's revenues, the TUA concludes, "British Telecom still has the most important and powerful monopoly and any claims to the contrary are wholly bogus".

The rise in telephone charges has had a significant effect on the

activities of large telecoms users, according to time sharing bureau Geisec. A spokesman said that users were more and more resorting to the use of leased lines to cut costs, and were also going more for the medium and high speed services in order to reduce connect times.

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French banking deal with Egypt

by Jack Gee

FRANCE'S State-owned Societe Generale clearing bank has signed an agreement to install a high performance data processing network for the National Bank of Egypt.

Under the five-year contract, which will involve an investment of \$3.5 million by the Egyptian bank during the first 12 months, Societe Generale's data processing subsidiary SG-2 will put between eight and ten IBM computers into service in branches throughout Egypt.

Societe Generale has already begun work in Cairo where two computers and 60 terminals are being

put into service at National Bank's head office. Other computers will be installed in the East and West Cairo offices.

A data processing centre is planned at Alexandria, two or three others in the Suez Canal area and the same number in Upper Egypt.

Keying in and retrieval will be conducted in Arabic. Richard Bruno, a senior data processing official at Societe Generale, says: "This is a launching pad for our know-how. We hope to expand throughout the Arab world."

For the Egyptian venture, Societe Generale and National Bank

of Egypt have set up a jointly owned subsidiary in which the Egyptians will hold 60% of the capital and the French 40%. National Bank has a staff of 6,700 at 30 branches.

Societe Generale's data processing branch now has minority stakes in companies in Argentina and Singapore as well as Egypt, and acts as a service firm throughout France.

It also has a stake in Norma, Portugal's leading data processing service company and is active in 18 countries. SG-2's turnover last year was £60 million.

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BLAIR... Mid-'83 target.

Design centre for UK

by Kevin Cahill
LSI Logic, the Californian-based logic array designer and manufacturer, will site its first non-US customer design facility in the UK.

Bob Blair, the company's international marketing vice-president, made the announcement last week in London, and confirmed that the site was likely to be between Reading and Bristol. "It must be within a stone's throw of the centre of the market," he said.

LSI's customers range throughout the electronics industry and consist principally of companies seeking to condense existing electronics functions from full board size, to units of a few, or even a single chip. Blair said that the target date for the facility was mid 1983.

The UK installation will be a "clone" of the current set-up in the company's head offices in Milpitas, California, complete with Amdahl V6 5 mips mainframe. "We do not intend to use either satellite or lease lines to hook into Milpitas. But our UK customers will have everything by way of design facility that exists in Milpitas," Blair said.

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Nearly 40,000 orders have been received since the Spectrum's April launch, and high rejection rates from the quality control checks at the Timex factory, coupled with Timex's annual three-week holiday break, caused the order backlog. Just under 20,000 Spectrums have been delivered.

But the factory is now back up to a production rate of 5,000 units a week, says a Sinclair spokesman, which should cut back the waiting list by the end of September.

Sinclair's trouble with the ASA stems from the requirement that mail order goods be delivered within 28 days. Several public complaints have been received by the ASA, and the matter will be going before its council shortly.

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Demand outstripping production capability is no new problem in the personal computer world. Acorn's BBC computer, launched in January, proved much more popular than Acorn or the BBC expected, causing persistent order backlogs for both versions. The backlog for the more powerful Model B has still not been shifted.

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Graves says support for Extended Architecture is "very important because MVS/XA is a major change." Legal and General will be able to use the Amdahl as a development machine for MVS/XA without interfering with its main production systems, running on the 3033.

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FERTIG... Almost faced his subjects.

Pundit sees bleak future for PCMs

by Kevin Pearson
IT IS not often that the IBM-watching pundits lay their views on the line along with the opinions of the people they write about. But that is what IBM-watcher Bob Fertig did, earlier this year.

Fertig did not actually make his comments on the same platform as the speakers from National Advanced Systems, Amdahl and IBM, but he at least put their view alongside his own in his latest report.

An extremely rare occurrence, giving the subjects of a report what amounts to a right of reply - but that is what Fertig did.

Not that it did them much good. Fertig, in line with most of the other members of the IBM-watching fraternity takes a bleak view of the plug-compatible industry in the future. He believes IBM is a new, leaner and hungrier IBM than ever before, which no longer offers the PCMs a price umbrella under which to shelter.

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Fertig dismisses claims by the PCMs that the existing IBM systems, estimated to be worth \$300 billion, will necessarily guarantee their continued business, especially when IBM begins to ship its new products, particularly its Extended Architecture, MVS/XA, in bulk. Fertig contends that the MVS/XA will place a major strain on the PCMs, which could break some of them.

He bases this view on the fact that IBM has not revealed the technical interface detail of MVS/XA, and adds that IBM will break with its recent policy of an-

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The PCMs naturally disagree with this proposition. David Anderson, Amdahl's director of planning in California, gave this response to Fertig's scenario: "We think we know enough about this architecture that whatever the change is we can in fact implement it."

National Advanced Systems, the other major contender at the top end of IBM's market, takes a similar view. Both companies have announced that they will support MVS/XA on their large-scale systems.

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NAS does not suffer from the same problem, Fertig says, because of its wide product range, including peripherals, because of its technological links with Hitachi, because its machines are heavily microcoded, like IBM's, but unlike Amdahl's, and because NAS, which was formed out of the wreckage of crashed leasing giant ICL, is now profitable.

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Fresh blow to Prestel

by Nicholas Enticnap
PRESTEL's wavering credibility received a further damaging blow earlier this month when British Telecom removed all the pages on the system booked by Track 2, an advertising agency based in London's Notting Hill Gate.

This action, taken allegedly because Track 2 has failed to pay its bills, has meant an estimated 500 companies have had information concerning their products and services removed from the Prestel database.

British Telecom's decision is bound to disturb Prestel information providers, and so increase the

doubts currently felt about the future prospects of Prestel, triggered by the system's continuing failure to attract subscribers and economic numbers. Only 18,000 Prestel sets are currently in use, nearly two years after the system went public.

Asked to comment on this view, a Prestel spokesman said that another organisation called Business Pages had offered to take over the pages concerned and to publish them free of charge.

He added that there was a possibility that businessman Nick Grant would buy out Track 2 and take responsibility for its debts.

SALES BRIEF Glasgow upgrade for Honeywell

HONEYWELL has won a £800,000 contract from City District Council to upgrade existing house allocation system running on the company's 166 mainframe.

The contract will bring increased power to the city processors, as well as higher capacity peripheral equipment including six disc drives, a fast jet and 62 VDUs.

£200m orders

RECENT orders from the UK Middle East have brought in sales of the Plessey computer controlled AR3D mobile radar and strategic radar to one £1 million. AR3D measures location, speed and altitude of aircraft within a range of up to 270 miles and is widely used for air traffic control (keeping aircraft apart) and defence applications (keeping aircraft together).

Key contract

MANNESMANN Tally has won an order from Key Computer Dorset for more than £1m worth of printers and VDUs. It will be embodied in their minicomputer systems sold by Key for between £3,000 to £30,000, which use Onyx Digital Equipment PDP-11 printers.

Hotel control

A £200,000 NCR mainframe has been installed in the 1,000 Concorde-Lafayette Hotel, Paris, for administration of the hotel's Concorde Group applications including accounts, budgeting, customer control, payroll and personnel management.

High-speed BT

BRITISH Telecom has bought three high-speed document servers for £300,000 from Lundby Ring of Uxbridge. They will be used to read hand-written containing details of operational costs, sort the data to produce magnetic tape input BT's mainframe for direct bills.

First user

MAIDENHEAD micro system builder Micro Scope has sold its first of its Videogate, which is a Prestel's Gateway, to the son of a holiday agent. Videogate allows PC users to implement private videotext systems, and Thomas has bought several to form the basis of a new videotext network for travel agents.

Holiday package

LONDON software house has sold another Phobos package to a young people's holiday agent. Phobos allows online booking from agents, produces documentation, and includes customer counselling.

Costing system

MEGABYTE of Leeds has sold estimating and costing system to a label manufacturer. Storey Evans for £25,000. It is used to give quick estimates to prospective customers based on past experience, and in contrast with the costs of fulfilling a contract.

Initial deal

BRITISH Olivetti from Essex-based Datala £50,000 worth of allow its BT212 writer to operate as a computer printer as a local order is part of a £250,000 over the next

SOFTWARE FILE

'Piracy killing off new product launches'

LACK of adequate protection against piracy is deterring software houses from releasing new products.

This is the view of Jonathon Baldachin, managing director of Little Genius, the company which has launched what is claimed to be a unique method of preventing unauthorised copying of discs and illegal use of software.

"I have spoken to many companies that have products ready to release, but they don't want someone else to get the benefit of their work," he said.

"Piracy kills off normal behaviour of the market, because the pirate can fill the market and supply the demand, inhibiting the commercial dealer. A possible result of this is an 'in/out' market, in which products are only saleable for six months before everybody has ripped them off, but you can hardly do this with something like a word processing package that has cost thousands to develop."

Although everyone is aware that the package software industry is rife with piracy no-one has yet been able to quantify the problem, partly because there are so many

different types of infringement.

"Quite apart from commercial piracy, where someone has copied the disc and sold it commercially under their own packaging, there is also casual infringement, where dealers make copies to throw in with odd machines, or to give to friends," said Baldachin. "Large corporations often buy only one copy of a piece of software and copy it for internal use, so that the supplier gets paid only for one licence instead of perhaps 20."

"There also the technical infringers, such as software houses that have paid for a compiler, but are distributing compiled code to people who haven't got a licence to use it or the support code."

Baldachin's answer is Protection, a system which protects copying of floppy discs by making each disc unique, with two identifiers located in different places on each one. This defeats bit-copiers such as Locksmith, Back-up, Copy-write and Copy II-Plus, because the replica is always slightly different from the original and will not run.

"We have used the disc's capacity in such a way that a bit copier

cannot tell the difference between data and non-data areas," explained Baldachin. "It means that we have to produce original copies all the time, but anyone who wanted to find out how it was done would have to work it out by hand."

There are many methods of software protection on the market, the majority a combination of hardware and software. Mektronik Consultants has developed SafeWare, a small hardware unit plus software interrogation routine which allocates a unique code to each application, similar to the original dongle produced for the Wordcraft package.

An alternative type of dongle is also available from accounting specialist TABS, which has been widely used to protect TABS' own software on all computers with an integral RS232 interface. This device, for which a patent is pending, fits on the RS232 interface of any CPM-based machine and is addressed by the program disc, which checks for a serial number. Surprisingly, the product has met with little response in the UK, despite its low price of £60.

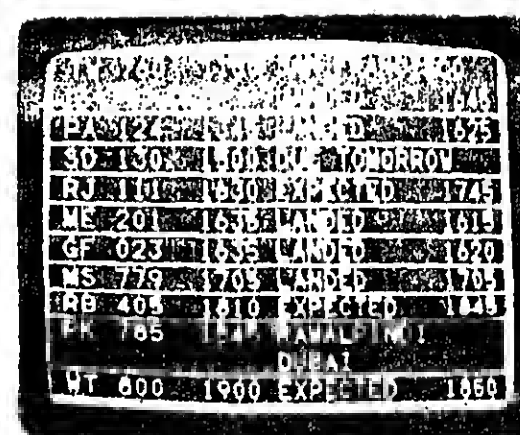
by Maggie McLening



BALDACHIN... "Piracy kills off normal behaviour".

Arrivals

Flight - Time - Information



Bair system controls flight information at Heathrow.

Flight information system installed at Heathrow

PASSENGERS at Heathrow Airport are now dependent on software developed by Vaughan Systems and Programming of Ware, Herts, for flight information.

Vaughan, which has also supplied public information systems for Gatwick Airport and British Rail stations, has now installed the British Airports Information Retrieval (Bair) system at Heathrow. The software covers both Central and Terminal systems, including the microprocessor-driven flipboards and pier-gate subsystem.

Written in Coral 66 real time programming language, Bair consists of one to run on the passenger terminal minicomputers, and a second to run on the main and standby Central machines. Five minicomputers form the basis of the system, all Ferranti

Argus 700B models. The passenger terminal sector receives flight data from the central machine and controls the updating of the public flipboard and television displays. Each of the three terminals has the ability to take over the function of any of the others in the event of a machine failure.

In the Central system a database holds key files on flight schedules, active flights, group movements and accounts, which are updated by input from 16 VDUs. This will handle about 300,000 flight movements a year, and provide information for over 25 million passengers a year.

All the software runs under Vaughan's Master Control Executive (MACE) operating system, designed to minimise response times by having a common database and interface area with no overhead instructions.

p-System users' conference

FOURTH bi-annual USUS (UK), the UCSD p-System Users Society, will be held at the Polytechnic of Central London from September 9-11. Open to members and non-members, the conference will cover commercial, industrial and educational applications.

Cryptography tutorial

ADVANCES in cryptography is the subject of a tutorial by Pergamon Infotech, to be held in London from September 7-9, and presented by Dr Carl Meyer.

Those wishing to attend should contact Pergamon Infotech at Berkshire House, Queen Street, Maidenhead, Berkshire.

September 1 deadline for Extended Pascal

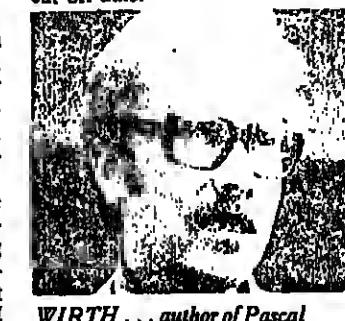
WORK is to begin on September 1 on drafting a domestic standard for Extended Pascal, the expanded version of the structural programming language developed by Professor Niklaus Wirth in Zurich.

The American National Standards Committee on Pascal, X3J9, has set September 1 as the cut-off date for acceptance of proposals for potential extensions to be included in the initial draft. Proposals will still be solicited after this date, but consideration of them will be postponed until after the first batch have been examined by the Extension Task Group (ETG).

At the moment there are five proposals in the Candidate Extensions Library, including OTHERWISE in CASE statement, ranges in CASE statement, constant lists, ranges in CASE

variant constant lists, exponential operator, and extended WITH statement. ETG is also currently reviewing proposal areas such as schema arrays, random I/O strings, exception handling and separate compilation.

Committee X3J9 is undertaking to publish the Candidate Extension Library within a year of the cut-off date.



WIRTH... author of Pascal

Big firms are trying before buying

FIRST reports from the innovative Software Rental Bank are that it is the large companies that are interested in trying before buying. Set up in July by the Apple Orchard mail order business, the Software Rental Bank is offering short-term rentals at up to 20% of the package's list price, or 10% to corporate members.

"The average rental period is between 14 days and a month," said John Chesney, joint managing director of SRB. "We have had a lot of enquiries, and are signing up new members every day."

Customers include GEC, Rowntree MacKintosh, the Central Electricity Generating Research Laboratories and the Midland Bank. "Some of them actually want to try our Visicalc," said Chesney.

SOFTWARE BRIEF

50% offer to software developers

TO promote application software for its Dynabyte 5000 microcomputer system, Metrotech is offering 50% price reduction plus marketing advice to would-be software developers.

The offer is open throughout August and September and, since the Dynabyte 5000 offers standard CPM, MPM and Osea operating systems, programs developed on it should be portable to other systems.

First product

BUREAU Datasolve, recently acquired subsidiary of Thorn EMI, is offering a financial consolidation package, Conquest, as its first product for sale. Aimed at large companies with multiple subsidiaries, Conquest is an interactive system.

Query by example

A HIGH-LEVEL query by example software tool has been launched by Norsk Data for its 16-bit and 32-bit minicomputers. Called Access, it allows the user to think of the database as a set of tables within which data can be inserted, amended, deleted or inspected using simple English-language commands.

Massive growth

THE US software products industry confirmed its position at the head of the data processing growth league, according to ADA/PC's latest annual survey of the US computer industry. Sales of software products rose by a massive 45% to \$22 billion, compared with an industry average of 24%.

Viewdata link-up

SOFTWARE that will enable viewdata users to link up with any computer database has been developed by SDL of Surrey. At present, special software has to be written to convert each computer file into a viewdata file.

Conference

THE world's largest software conference will come to London in 1985. This is the International Software Engineering Conference, which is held every 18 months and is next scheduled to run for three days in Tokyo this September.

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PRESTEL's waning credibility received a further damaging blow earlier this month when British Telecom removed all the pages on the system booked by Track 2, an advertising agency based in London's Notting Hill Gate.

This action, taken allegedly because Track 2 has failed to pay its bills, has meant an estimated 500 companies have had information concerning their products and services removed from the Prestel database.

British Telecom's decision is bound to disturb Prestel information providers, and so increase the

doubts currently felt about the future prospects of Prestel, triggered by the system's continuing failure to attract subscribers in economic numbers. Only 18,000 Prestel sets are currently in use, nearly two years after the system went public.

Asked to comment on this view, a Prestel spokesman said that another organisation called Business Pages had offered to take over the pages concerned and to publish them free of charge.

He added that there was a possibility that businessman Nick Grant would buy out Track 2 and take responsibility for its debts.

SALES BRIEF

Glasgow upgrade for Honeywell

HONEYWELL has won a £800,000 contract from Glasgow District Council to upgrade its existing house allocation scheme, running on the company's L66 mainframe.

The contract will bring increased power to the existing processors, as well as higher capacity peripheral equipment including six disc drives, a fast printer and 62 VDUs.

£200m orders

RECENT orders from the UK and Middle East have brought total sales of the Plessey computer controlled AR3D mobile tactical and strategic radar to over £20 million. AR3D measures direction, speed and altitude of aircraft within a range of up to 270 miles, and is widely used for air traffic control (keeping aircraft apart) and defence applications (keeping aircraft together).

Key contract

MANNESSMANN Tally has won an order from Key Computers of Dorset for more than £100,000 worth of printers and VDUs. They will be embodied in business minicomputer systems sold by Key for between £2,000 and £30,000, which use Onyx and Digital Equipment PDP-11 computers.

Hotel control

A £200,000 NCR mainframe has been installed in the 1,000-bed Concorde-Lafayette Hotel in Paris, for administration of the 28 hotels of the Concorde Group. The applications include accounting, budgeting, customer credit control, payroll and personnel management.

High-speed BT

BRITISH Telecom has bought three high-speed document readers for £300,000 from Lundy Faruigton of Uxbridge. They will be used to read hand-written tickets containing details of operator-assisted calls, sort the data and produce magnetic tape input to BT's mainframe for direct billing.

First user

MAIDENHEAD micro systems builder Micro Scope has sold the first of its Videogates, which imitate Prestel's Gateway, to Thomson Holidays in a £100,000 contract. Videogate allows IBM users to implement private videotex systems, and Thomson has bought several to form the basis of a new videotex network for travel agents.

Holiday package

LONDON software house Harrison Computer services has sold another Phobos package holiday booking system for £22,000 to a young people's holiday operator. Phobos allows online bookings from agents, produces documentation, and includes customer accounting.

Costing system

MEGABYTE of Leeds has sold an estimating and costing system to printer and label manufacturer Storey Evans for £25,000. It will be used to give quick estimates to prospective customers based on past experience, and to correlate this with the costs of fulfilling the contract.

Initial deal

BRITISH Olivetti has bought from Essex-based Datatec Terminal £50,000 worth of converters to allow its ET121 electronic typewriter to operate as a data input device as well. The initial order is part of a longer term deal expected to be worth £250,000 over the next two years.

SOFTWARE FILE

'Piracy killing off new product launches'

LACK of adequate protection against piracy is deterring software houses from releasing new products.

This is the view of Jonathon Baldachin, managing director of Little Genius, the company which has launched what is claimed to be a unique method of preventing unauthorised copying of discs and illegal use of software.

"I have spoken to many companies that have products ready to release, but they don't want someone else to get the benefit of their work," he said.

"Piracy kills off normal behaviour of the market, because the pirate can fill the market and supply the demand, inhibiting the commercial dealer. A possible result of this is an 'in-out' market, in which products are only saleable for six months before everybody has ripped them off, but you can hardly do this with something like a word processing package that has cost thousands to develop."

Although everyone is aware that the package software industry is rife with piracy no-one has yet been able to quantify the problem, partly because there are so many

different types of infringement. "Quite apart from commercial piracy, where someone has copied the disc and sold it commercially under their own packaging, there is also casual infringement, where dealers make copies to throw in with odd machines, or to give to friends," said Baldachin. "Large corporations often buy only one copy of a piece of software and copy it for internal use, so that the supplier gets paid only for one licence instead of perhaps 20."

There also the technical infringers, such as software houses that have paid for a compiler, but are distributing compiled code to people who haven't got a licence to use it or the support code.

Baldachin's answer is Protection, a system which protects copying of floppy discs by making each disc unique, with two identifiers located in different places on each one. This defeats bit-copiers such as Locksmith, Back-it-up, Copy-write and Copy II-Plus, because the replica is always slightly different from the original and will not run.

"We have used the disc's capacity in such a way that a bit copier

cannot tell the difference between data and non-data areas," explained Baldachin. "It means that we have to produce original copies all the time, but anyone who wanted to find out how it was done would have to work it out by hand."

There are many methods of software protection on the market, the majority a combination of hardware and software. Mektronik Consultants has developed SafeWare, a small hardware unit plus software interrogation routine which allocates a unique code to each application, similar to the original dongle produced for the Wordcraft package.

An alternative type of dongle is also available from accounting specialist TABS, which has been widely used to protect TABS' own software on all computers with an integral RS232 interface. This device, for which a patent is pending, fits on the RS232 interface of any CPM-based machine and is addressed by the program disc, which checks for a serial number. Surprisingly, the product has met with little response in the UK, despite its low price of £60.



BALDACHIN... "Piracy kills off normal behaviour".

September 1 deadline for Extended Pascal

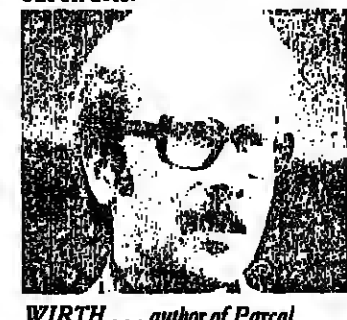
WORK is to begin on September 1 on drafting a domestic standard for Extended Pascal, the expanded version of the structural programming language developed by Professor Niklaus Wirth in Zurich.

The American National Standards Committee X3 Technical Committee on Pascal, X3J9, has set September 1 as the cut-off date for acceptance of proposals for potential extensions to be included in the initial draft. Proposals will be solicited after this date, but consideration of them will be postponed until after the first batch have been examined by the Extension Task Group (ETG).

At the moment there are five proposals in the Candidate Extensions Library, including OTHERWISE in CASE statement, ranges in CASE statement, constant lists, ranges in CASE

variant constant lists, exponential operator, and extended WITH statement. ETG is also currently reviewing proposal areas such as schema arrays, random I/O strings, exception handling and separate compilation.

Committee X3J9 is undertaking to publish the Candidate Extension Library within a year of the cut-off date.



WIRTH... author of Pascal

Big firms are trying before buying

FIRST reports from the innovative Software Rental Bank are that it is the large companies that are interested in trying before buying. Set up in July by the Apple Orchard mail order business, the Software Rental Bank is offering short-term rentals at up to 20% of the package's list price, or 10% to corporate members.

"The average rental period is between 14 days and a month," said John Chesney, joint managing director of SRB. "We have had a lot of enquiries, and are signing up new members every day."

Customers include GEC, Rowntree Mackintosh, the Central Electricity Generating Research Laboratories and the Midland Bank. "Some of them actually want to try out Visicalc," said Chesney.

Massive growth

THE US software products industry confirmed its position at the head of the data processing growth league, according to ADAPSO's latest annual survey of the US computer industry. Sales of software products rose by a massive 45% to \$22 billion, compared with an industry average of 24%.

Viewdata link-up

SOFTWARE that will enable viewdata users to link up with any computer database has been developed by SDL of Surrey. At present special software has to be written to convert each computer file into a viewdata file.

Conference

THE world's largest software conference will come to London in 1985. This is the International Software Engineering Conference, which is held every 18 months and is next scheduled to run for three days in Tokyo this September.

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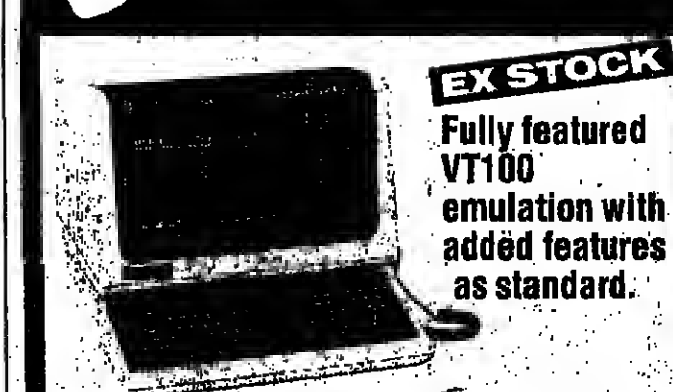
p-System users' conference

FOURTH bi-annual USUS (UK), the UCSD p-System Users Society, will be held at the Polytechnic of Central London from September 9-11. Open to member and non-members, the conference will cover commercial, industrial and educational applications.

Cryptography tutorial

ADVANCES in cryptography is the subject of a tutorial by Pergamon Infotech, to be held in London from September 7-9, and presented by Dr Carl Meyer. Those wishing to attend should contact Pergamon Infotech at Berkshire House, Queen Street, Maidenhead, Berkshire.

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Second half of 1982 'industry's low point'

IN our last issue we reviewed an optimistic report by Creative Strategies on the prospects for the microcomputer industry. Now it is the turn of New York stockbrokers Smith, Barney, Harris, Upham and Co., to peer through the short-term gloom and to discern grounds for medium-term optimism.

Smith Barney's analyst Peter Labé, while admitting that the second half of 1982 will be difficult to predict, notes that it is likely to represent the industry's low point in this cycle.

"The third calendar quarter is always tough in the mini business, with a normal seasonal summer lull in the US, and Europe quiet with vacations. Secondly, with Canada, the US and Europe in the doldrums and a weak capital spending outlook generally, a rapid turn is unlikely and a moderate economic recovery next year is as much as we should expect."

Labé, never one of Wall Street's doom merchants, does say that the microcomputer industry no longer has the growth prospects in the 1980s that it had in the 1970s. The reasons he cites for this are "mostly because of the micro and the improved position of mainframes."

Historically the major companies in the microcomputer field, and there are now over 70 in the US alone, have achieved double digit growth. And the average



HENSON... tighter controls at Prime.

Hong Kong woos UK computer companies

HONG KONG, one of the most unfettered and successful capitalist economies in the world, has beefed up its representation in London, and is encouraging UK companies to start up manufacturing in the Crown colony.

So far no announcements have been made by any enterprising UK computer companies planning to set up on China's doorstep. But the Chinese themselves have wasted no time in taking up the new incentives.

A joint venture has been established between two Hong Kong companies and a group from the People's Republic of China.

Called Sino On Line Ltd, the new company plans to help boost exports of Chinese microcomputers and to import technology from the West.

Most observers are sceptical about the micro export angle. Few people have seen much of China's electronics industry, and those

growth rate of the top 10 mini makers during the '70s often exceeded 25%.

But DEC, in particular, has seen its annual growth slide over just two years, from over 35% to something under 20% if last quarter's figures are anything to go by.

Labé says that DEC has been reporting a slowdown in new order rates for months now, and in the quarter ending in March, operating earnings (profits) showed a year-to-year decline for the first time in the cycle, even though reported earnings showed a slight increase because of non-operating income.

One reason for this situation is DEC's relative lack of debt, which is only something like \$320 million in medium and long-term loans against a cash mountain of \$700 million at the beginning of this recession.

Another probable factor is that the microcomputer is working-capital intensive, so a slowdown in growth usually means that debt decreases and cash generation improves rapidly.

By implication, DEC is still adding to its cash and interest paying balances.

Labé notes four appealing aspects of DEC, for medium-term consideration.

"One, the company's business plans are not based on anticipation of an exuberant economy.

"Two, its product introductions are in high productivity areas. "Three, it has been early to recognise, and respond to, the micro revolution."

Expanding on this point, Labé singles out the DEC line of personal computers, particularly the 350, as the best product on the market today and probably for some time to come, seen not only as a business opportunity but as a means to crack the office and national accounts market.

Advantage number four is DEC's two new Winchester drives which, he says, "solve a product/technology hole of long standing in DEC's line."

For those competing against DEC, Labé warns that the company will become more aggressive in the marketplace, as it has always done during recessions.

Labé concludes his survey of DEC by forecasting sales of \$4.6 billion for next year, and a growth rate of 18%.

Al Mullins, DEC's public affairs vice-president, has more than once said that if growth falls below 25% the company may consider paying a dividend.

DEC has never paid dividends, preferring instead to retain profit for growth.

Labé describes Tandem's post-1978 quarter to quarter growth as "one of the most powerful quarterly growth records we have ever seen". But he does not expect this to continue.

The third quarter of 1982 is likely to show an actual decline of close on 2% compared with the quarter just ended, according to Labé, who also cuts his original forecast of sales of \$380 million, down to \$322 million.

Reasons for this, apart from "macroeconomic problems", are a probable revenue shortfall from sales in Canada, West Germany and parts of the US, combined with a fall in new customer growth.

For 1983 Labé says that Tandem is likely to face a couple of tough sequential growth quarters, followed by significant improvement.

One good outcome of the slowdown in growth is likely to be a slowdown, if not an actual halt in cash absorption by Tandem.

The slide at Data General will continue says Labé.

DG has been having a bad time for almost two years now, and Labé feels the gloom: "If volume does not improve in the December period, we consider it possible that Data General will report a loss (for the quarter.)"

Venture fund finds few firms to invest in

DESPITE intense activity in the UK in pursuit of good computer companies in which to invest, Venture Capital Fund's United Computer and Technology Holdings remains lightly represented in the industry.

The company is publicly listed and raised over £2 million for investment last year. So far this has been sunk mainly in gilt-edged securities.

Company chairman Tom Buffet says that the building of the portfolio is proceeding much as he expected. But he admits disappointment over the low number of unquoted UK stocks so far acquired.

"There is no shortage of ideas in this country but in new industries it is difficult to identify the correct mixture of technological innovation and talent, combined with the more traditional commercial manufacturing and marketing skills."

In the UK, the fund has 1,000 shares in unlisted Computer Associates and a series of more conventional stakes in ICL, Kwik International, Case and Cable and Wireless.

Bureau's success was unforeseen

"THE extraordinary financial success of the company over the years was not foreseen." This comment from a brokerage firm refers to a small representative of that allegedly dying breed, the centralised service bureau.

The company, NMW of Nantwich, has recently cleared the decks for its long-awaited Unlisted Securities Market listing by giving all the shareholders one free share for every eight shares they currently hold.

Brokers Heselton Moss say that the NMW share price has been very disappointing this year so far, and outlines some of the reasons.

A bid to acquire a microelectronics company to build the NMW designed HSD1 terminal was thwarted by delays resulting from a battle between the management and a small group of the founding shareholders, who still control voting shares in the company.

This tussle was eventually resolved by the one for eight issue, but NMW apparently lost out in the bid for a micro builder of its own and is still having the HSD1 built on a subcontract basis.

NMW's managing director Brian Johnson says that 20 clients



JOHNSON... "Going well."

Fund buys into Sord

UK venture capital fund Abingworth was one of only three non-Japanese institutions to obtain shares in the first stock placing by Sord Computer Systems in Tokyo.

The two other funds are believed to be American, and the non-Japanese investors are thought to have about 30% of the 30,000 shares issued.

The placing was a private one, led by Nomura Securities, and was heavily oversubscribed despite the fact that the price asked, 70,000 yen for the 500 yen share, was the highest ever asked and paid for an unlisted company's shares.

According to Sord company president Takayoshi Shima, the money will be used to fund the building of a new eight-floor factory in Tokyo, which will more than triple Sord's productive capacity.

This has recently been increased by the addition of a new factory in Singapore and the purchase of a seven-acre site in Dublin for an expanded European production centre.

Shima has long been ambitious to make Sord a Japanese Apple.

CW SHARES TABLE

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GILB'S MYTHODOLOGY

Principles of Infotecture — 10

System design lacks a good common language

THE Tenth Principle of Infotecture states: "Written, structured, and quantified documentation about high-level information systems architecture (infotecture) is necessary to overcome the communication problems caused by system complexity, time and the many people involved."

We are constantly giving lip service, and sometimes real hard work, to documentation. Unfortunately, at best, it is not the most critical kind of documentation we usually worry about.

We have a tradition of worrying about our low-level detailed maintenance documentation, so that we can more easily maintain or enhance our present systems.

At the higher reaches of system architecture, where you are setting goals ("Availability = 99.9% of the office day") and identifying major technical strategies ("Develop totally distinct versions of the critical software") we have almost no common language whatsoever. Moreover, not many people appear to have recognised the problem!

One organisation which recognised the problem and showed an advanced understanding of it, was IBM's Santa Teresa Labs. The manager of inspections there, Ken Christensen, told me in 1979 that the company was unable to apply the deep and rigorous inspection method to several of the highest

levels of software design. It had to be satisfied with design reviews (which are roughly four times less effective) because inspection is a process that presumes the utmost in clarity and unique interpretation of the various levels of design which it examines and compares against each other.

If that clarity is absent, then the inspection process is correspondingly ineffective. It is rather like

"unfortunately they still lead to specifications that are as ambiguous as the English language".

We fail to write down fundamental aspects of our high-level design. Typically, we do not even write down all the critical goals of our projects: "hardly ever" is my observation. And it is just as partial or as bad at all other levels of design documentation.

We fail to structure our high-

We fail to structure our high-level infotecture documentation so that it relates to the goals we are trying to achieve. We are so hot on structuring our programs that we have not yet learned a regular practice for the structure of most high-level documentation

trying to proof read two presumably identical but different and almost illegible handwritten documents. They may be equivalent, but how can you determine that if you cannot even read the handwriting itself?

Christensen was anxious to find clear design specification languages to use at the highest level. He showed me three volumes of design handbooks used by IBM development labs remarking that

level infotecture documentation so that it relates to the goals we are trying to achieve. We are so hot on structuring our programs, that we have not yet learned a regular practice for the structure of most of our high-level documentation. The exception is the "functional" design structure, for which many reasonable methods and languages exist. But what use is this, if the very crux of design, the costs and the qualities of a system, are not



Tom Gilb is an independent consultant, lecturer and author on computing topics.

related to these functional aspects of it?

One of our greatest and most consistent sins is that we make little use of our civilisation's greatest communication device — the use of measures, and numbers to express qualities and resources required in our future systems, to express our experiences with past systems, or to express our judgment of a paper design specification.

I suspect that we will have to experience major tragedies before we wake up to the necessity of a consistently better practice in this area. We only really learn when all is lost.

But there are perhaps some people reading this who have already experienced their hard knocks and who are ready to emulate Ken Christensen in looking for better high-level languages for system design.

Tom Gilb

HUMAN TOUCH

Where to find advice

AT EVERY level in a data processing project there is an element of management. Some people see management as the efficient use of resources. The easiest way of achieving efficiency is by making a selection from a wide choice. Having a wide choice improves the chances of finding a better fit between the resource and the requirement. A better fit should be more efficient.

Lining up a wide choice has to be done in a hurry when it is needed so it is a matter that always should be borne in mind. It doesn't take long to find what you need if you have prepared yourself with the appropriate contacts and reference books.

The Computer Users Year Book is in my opinion an excellent source of reference used widely for its salary surveys and its list of users. Few realise that it includes references to Japanese and Albanian character sets, lists of computer periodicals, computer types, supplies of disc pack storage units and financial service companies, to name a few at random. If the CUYB fails, you then go to its list of associations and institutes for a lead to who else could help.

There are specialised directories for most trades in the same way that CUYB serves computer users. Beyond those directories, the British Computer Society has an information officer who can usually put you on to someone who might know the answer. The trade associations are always worth a try and both the AICS and CSA provide a service of circulating requests for specific skills round their memberships.

Alan Simpson

Cliff Dillaway

DOWNTIME

Well, it's one way to stop the conflict

I HEAR that US military chiefs are having great fun with a nuclear war simulation program called Janus, developed at the Lawrence Livermore laboratory. Nuclear fire balls and fall-out can be simulated along with mine explosions, incandescent forest fires and flattened towns in a pastiche of colour on a graphics tablet.

The "pretend" battles usually begin with conventional weapons, but many officers have a disquieting propensity to "go nuker" (charming turn of phrase) when the enemy gains an advantage.

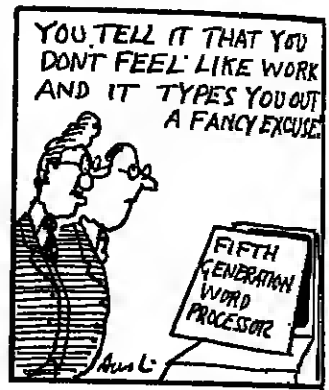
One officer indiscriminately picked the largest nuclear weapon from his tactical arsenal in a desperate bid to halt the insidious Russian Red Army.

His bid worked a treat. Red Army wiped off the map.

But the officer's elation was

short lived. The kiss of death pecked his face as a growing white circle on the graphics tablet indicated that he had wiped out all his own forces as well.

"Holy smoke," he commented.



How to get to the top

IN 1964 Robert Smallcombe, now president of Delta Data Corporation, showed us how he got where he is today. Then he was a mere manager at a newspaper printer, which was about to set up a computer department.

"You work with machines," said his boss, "therefore you will run the computer department."

Shocked, but flattered, our man knew what to do — and he wasn't going to do it himself. So he hired a DP manager.

An IBM salesman was invited round to display his hardware.

"Now here's a glossary of DP terms," said Smallcombe to his new DP manager. "Look through them and fire some of them at the IBM salesman tomorrow."

"Don't worry whether they mean anything, just make sure you get some of them in."

Our blue-eyed DP manager did this, and in due course the IBM salesman said: "Gee brother, you've been on one of our training courses."

Smallcombe tells me that from then on the IBM salesman spoke English to his DP manager.

On the right track?

CLIVE SINCLAIR not only leads Sinclair Research, the most prolific computer manufacturer in the world, but also in chairman of British Mensa, which contains some of the most intelligent people in the world.

He demonstrated his intelligence and eloquence at Mensa's Golden Ages symposium in Cambridge. "The most Golden Age of man's history may well lie before us, if we can only move in the right direction," he said.

Sinclair identified the golden ages of the past, including Augustan Rome and Elizabethan England, but failed to mention Thatcherite Great Britain.

All these Golden Ages share qualities in common that give people time to think, he argues. He names six such qualities, including peace, security, and the need to maintain the necessities of life. And beyond that a surplus of time for thinkers.

"Given all these elements the body of men arises which can turn its attention to matters other than necessities."

Buphemism for the decadent society? Surely not from Clive Sinclair who himself works so hard.

Basic facts

NOTHING is as simple as it seems in our universe. The moon does not revolve round the earth — both revolve round their mutual centre of gravity. The mind does not control the body, nor the body the mind — both gravitate about the soul.

Similarly there is not one teacher and one pupil or 30 pupils, however many in a class. Teacher and pupils rotate about their common denominator of knowledge.

This universal fact can have unfortunate side effects, as pointed out by Ada guru, John Barnes. Senior decision-makers ignorant of data processing have got kids with ZX81s who learn Basic and attend computer summer schools.

Cleaned out

"WHAT has happened to the UK office systems companies that once promised to sweep the board and demolish the giant US corporations such as Wang and IBM that dominate their market?" I asked a colleague.

"They never did sweep the board and now they are sweeping the street," replied the harassed cynic.

Chad

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, August 26, 1982

Technological blind alleys

ONE of the besetting sins of the computer industry has been its eternal preoccupation with technology. Historically, progress was measured in technological terms, with the first generation valve-based computers giving way to their transistor-based successors which were in turn replaced by computers using integrated circuits.

Since then technological progress has been by evolution rather than revolution, and the only fundamental change was the replacement of ferrite core main memory by MOS chips in the early Seventies.

That has not stopped people from pursuing all sorts of technological red herrings. Bubble memories, charge-coupled devices, plated wire memories, holographic memories and Josephson junctions are just some that come to mind. To be fair, not all have been totally unsuccessful, but all have been blind alleys leading away from mainstream development to nowhere in particular.

The latest buzz phrase to enter the computer professional's exponentially increasing esoteric vocabulary is gallium arsenide. IBM, Univac, AT&T and a number of others are said to be spending millions of dollars on the stuff, searching for yet another panacea to computing's problems.

Gallium arsenide (GaAs) is, like MOS, a semiconducting medium but using completely different raw materials. Its attraction is that it offers a potential improvement of a thousandfold in operating speed over MOS.

Given that potential equals actual and that the cost is more or less the same, there would be a case for it. But gallium arsenide is still a research lab technology, with who knows what production snags to come, while in contrast there is a 10-year-old multi-billion pound industry heavily committed to and knowledgeable in the production engineering of silicon chips.

Bearing this in mind, can gallium arsenide possibly be worth the effort? What computer manager would name lack of processing speed as a major constraint on his operation?

It is perhaps worth pausing a moment just to consider present day processing speeds. They would stagger Turing, von Neumann, Mauchly & Co: the fastest processors have their cycle times measured in units so small that a new word — picosecond — has had to be invented to describe it.

There are a thousand of those in a nanosecond, and even a nanosecond is so small that a ray of light travels less than a foot during one. An electronic pulse, not being a massless particle, travels considerably less. Can it really be that real improvements in computer performance worth having can be gained from expensive research into this area rather than into the computer's more obvious deficiencies?

One thing to be said for the Japanese fifth generation concept is that it does at least attempt to address just those obvious deficiencies. Computers have always been difficult for non-specialists to understand, let alone to use, and the natural language information base intelligent machine is attractive because it solves this problem at a stroke.

The trouble is, that's only in theory. And because it completely discards all our hard-won knowledge, understanding and development of the von Neumann computer, it very much throws out the baby with the bathwater.

We don't know that problems the fifth generation is going to throw up, because it is so far only a concept, and ignorance is bliss. Hence all the enthusiasm.

The really practical developments that are worth keeping an eye on are those which accept the von Neumann computer as a starting point, warts and all, and attempt to dispose of the warts.

Univac, for example, one of the riders on the gallium arsenide bandwagon, has developed an innovative and probably unique software product called Mapper. It is designed to enable non-specialist people to find their way about an 1100 database, design their own reports, create their own files, and even develop their own systems if they wish.

With products like this, it's difficult to see why the company is bothering with will-o'-the-wisps like gallium arsenide.

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by C. Griffin of Sutton Coldfield, who wins £2.

World War II was a time when computers were booming.

School exam paper.

LETTERS

Videotex for travel agents

THE RECENT report of the Travel Association's Consultative Council highlighted that travel agents are faced with a bewildering choice of competing computer systems and, as a consequence, are "stalling not buying."

A way out of the dilemma is perhaps to treat front office and back office functions separately and not launch straight into integrated reservations and administrative systems. New technology — in particular, videotex — is offering agents a low-cost solution to reservations handling.

The sensible approach for the agent might well be to start with videotex TV-to-computer reservations and subsequently to "bolt on" other goodies such as video and microcomputers to handle payroll and accounting systems.

Despite the considerable take-up of Prestel by the travel industry compared to other industries, the number of sets installed is still very low compared to the potential market. Recent figures show 2,815 sets in 1,150 travel outlets, whereas the immediate potential has to be five times that number (4,500 travel agents with three sets apiece). Add keyboards, printers and other add-on equipment and that's a huge market on which the industry has yet to capitalise.

TIM RUNDLE
Sales Development Manager
Thomson Holidays
London NW1

Extraordinary maths

"ARNOLD ARNOLD is not an ordinary name. Neither is the man" (CW, July 29). And neither is his mathematics.

The maths is extraordinary because (a) it claims fantastic modelling capabilities, but we only have A.A.'s word for this (I'm surprised that Philip Hunter should make excuses for A.A. when he says he was not shown the mathematics); and (b) the little that we are shown does not model what A.A. says it does.

The first player in a noughts and crosses game does not have nine choices for his first move. He has nine empty spaces where he can

Bitter taste of TOPS

I WAS pleased to read your major feature on education and the computer industry (CW, August 5).

Six weeks ago I finished a TOPS course, along with 11 other hopeful future programmers. Only three of the 12 had been offered positions while on our industrial attachment, leaving nine of us to go and join "Maggie's Army". After only a few days it became apparent that the industry and its employment agencies have a blind bias against trainees, especially TOPS students, with no regard to the quality of the particular course attended. On one occasion I phoned a prospective employer to experience a heavy "TOPS? Huh!" and the receiver at the other end was thrown down, leaving me with not only a quiet line but a depressing silence in the gut.

Having given up a well-paid, good but boring position to enter a career in which I have often proved my aptitude but with no previous training, the TOPS course was the ideal answer. It appeared to stand to reason that if the government were prepared to pay £5,000 to £6,000 in training and benefits to put me through the course, then both the government and I would gain from it. Not so!

One also wonders whether the 25% level of success (?) is achieved on all the courses given. How much is the country prepared to pay out to create unemployed programmers whose basic, but enthusiastic and in most cases intuitive,

skill will fade away in proportion with intake of Valium required to suffer this environment.

Three questions must be answered therefore: Are the courses designed to meet the needs of the industry or just to pass exams? Do the employers require educating in the "goods" offered at the ends of these courses, some of which are excellent? Does the Manpower Services Commission fulfil its responsibility to the taxpayer when it waves goodbye to the students at the end of the course, regardless of their employment status, or should a few pounds more be spent to create contacts to ensure 100% employment?

At last the media is putting these questions forward. Further help with cheaper advertising rates for trainee positions, cheaper agency rates and more pressure on the government and the industry may prevent further disillusionment.

It's not only the students who are losing from this situation but also the whole of British industry, as these new staff with new approaches, new ideas and up-to-date training are thrown on the scrap heap.

R. D. HILL

Pitsea Essex

International IT centre

I WAS interested to read (CW, July 29) of the plans to establish an international information technology market centre in Boston. I'm very happy to be able to tell your readers that, once again, we in the UK are ahead of our international rivals, and particularly the Americans.

The Milton Keynes Development Corp is in the process of establishing a major information technology centre in the city, part of which will contain a permanent exhibition centre which is intended to do just those things referred to in your article.

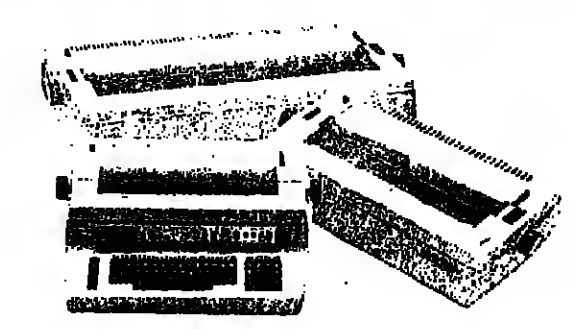
As a growing centre for the application of information technology, both in office applications and in industry, the city is attracting interest from both across the UK and overseas. With this in mind our intention is to set up an exhibition centre which will enable companies which are not already sited in Milton Keynes to have a shop window.

One up for the Brits!

ERIC BIRD
Manager

Information Technology Exchange
Milton Keynes

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Anything over 2secs is a slow response

WHAT is a good response time? The answer depends on the application, and can be anything from one second to 24 hours. An operator submitting a batch of transactions may be only too happy with a response time of five minutes while he has a smoke and cup of coffee.

The programmer sitting at his terminal, however, demands much faster responses, certainly no longer than four seconds and preferably under two.

In a typical session, several hundred responses may be called for. The difference between two and five seconds per response then multiplies to many programmer minutes - not to be sneezed at, especially if he is a contract programmer, carping £10 an hour or so.

A most unscientific Programmer's Page poll elicited that 1.7 seconds is the average response time required by programmers. Most would settle for two, as confirmed by Computer Technology (CTL) which makes Momentum, a real-time system based on its 8000 Series machines.

"Most people put in a requirement spec that expects responses to be within two seconds most of the time and not more than five seconds," says a CTL spokesperson.

Nick Wenman of Philips Data Systems, which has recently put a new software development aid called Maestro on to its P7000 minicomputers, agrees, although he goes one second better. "All editing response times on Maestro are less than one second," he says. "A search may take more than a second, but if you are changing something, or paging through a file, response is usually immediate."

CTL also claims a response time of less than one second for its 8000 Series.

Wenman tells of top secret IBM research aimed at "sub-second" response times, but my enquiries failed to evoke any hard facts.

The Maestro available from Philips is established as a European standard development tool and was put together by Software Engineering. The idea is that program development is removed from the main production computer, on which a variety of debugging and editing tools are available. There is single key reference to system and program specifications, and structure diagrams, as well as higher level facilities such as a management project control system.

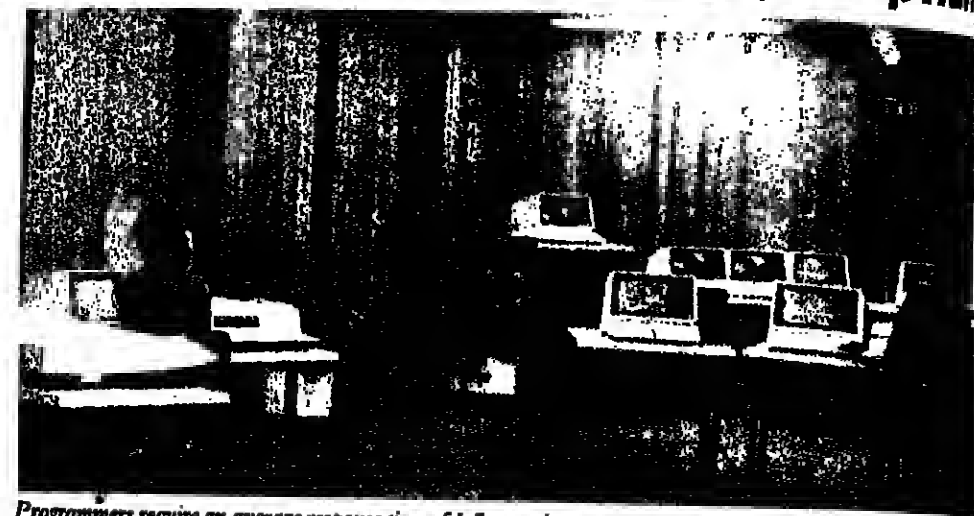
Softlab chose the Philips P7000 for this dedicated work - the key

to Maestro's success, says Wenman. "Alongside the processor is a video generator board constantly generating TV signals to each VDU, up to 24 altogether," says Wenman. A part of main memory is dedicated to the VDUs, split up equally between them.

This gives a near instant echo on the screen of the contents of relevant files, and at the same time anything on the VDU gets back to the processor almost instantly.

In effect the programmer has a window on his file through which he can tamper directly with its contents. The usual input/output buffer between terminal and processor is eliminated. As a result, screen manoeuvres can be performed at near disc transfer speed, says Wenman.

CTL also eliminates input/output buffers with its screen-based editor. Here the system mirrors movement of the cursor on the screen to keep response times below two seconds, often under one.



Programmers require an average response time of 1.7 seconds.

Response times are a problem with clusters of terminals competing for time on a single line. When the number of terminals on a single processor exceeds a critical level, responses can suddenly become unacceptable.

To meet this problem, CTL uses a Cluster controller, which can pretend to the system that it is an operator, generating input character sequences.

These it sends from each VDU on the cluster simultaneously and then displays the output on the relevant screen to measure the response time.

As far as the user is concerned,

response time is the interval between hitting the key and receiving the computer's reply on the screen. Yet many response time measures only allow for time taken for the central processor to make its reply.

Harwell Research Laboratories have therefore developed a tool called Snapi to measure the total response time of IBM networks.

At present IBM uses a TP monitor to measure the time taken for signals to return from the central processor. But there is also the time from the terminal to the TP monitor. "With a heavily loaded cluster of terminals, this could go

up to 10 seconds in fact," says Ken Gell, who led the development team at Harwell.

"Snapi allows users to test a speed of line and the time taken for a signal to a cluster," Gell

Gell admits that Snapi has been a commercial success. "This is because users do not spend money on something tell them they are going to spend more money," he says.

But as IBM networks get larger, terminal delays going to become more significant.

Then Snapi will come in own.

OP SPOT

The ops manager is rarely given vital facts about his firm's future. But he must still plan effectively, says Brian Pugh

Top managers in desperate need of advice on DP policy



The author, Brian Pugh, is an operations manager with more than 10 years' experience on a major IBM site.

ONE OF the many duties of an operations manager is to participate in planning exercises for future requirements. The two principal areas of concern are capacity and manpower planning. The degree of involvement will obviously vary within each installation, but it should be a very high one.

Traditionally all forward planning has been done by looking at historic trends and then assuming that these trends will continue with minor adjustments for any known changes in the relevant factors. In DP, even with the absence of corporate strategies and long term projects, history will show a continual increase in the demand for CPU power and disc space.

Prior to 1980 it was possible to get away with this kind of forecasting. Through the troubled 1970s with productivity falling and inflation rising, the demand for processing requirements continued to

rise. Although belt-tightening became necessary companies appeared to be holding their own. Since then, however, events have taken a dramatic turn.

Industry is being slimmed down and restructured. Low level skills are being automated, and high labour content work transferred to the sweat shops of the Far East. The effects of all this are felt, directly or indirectly, throughout every company.

Against this background, forward planning is still essential to ensure that users are provided with the service they expect. In order to carry this out a more radical approach is required incorporating a more comprehensive set of pointers.

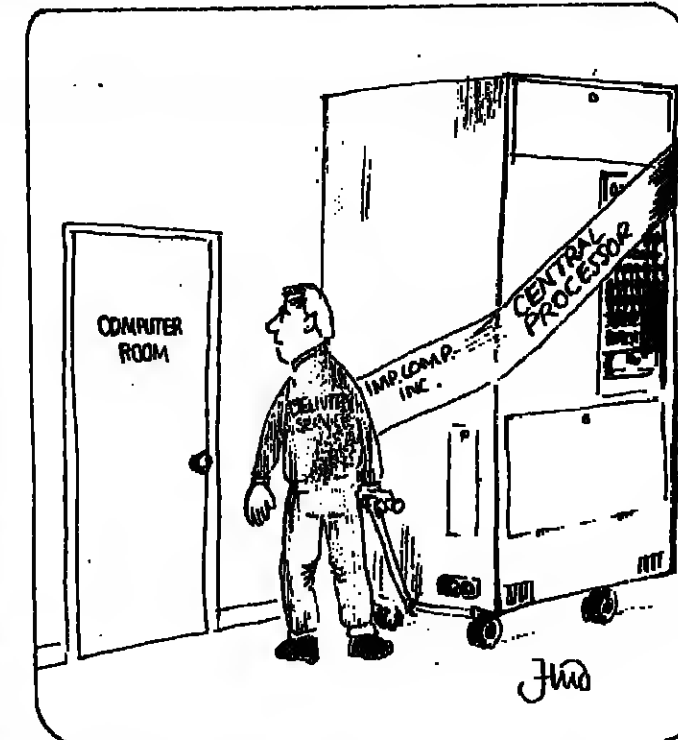
Unfortunately, DP departments have made things more difficult for themselves by failing to make sufficient impact within their own companies. Very few organisations have, as a serving member of their

board of directors, a DP professional who can advise them of the impact the state of the art can have on management goals.

Where a company has a long term business strategy very little information concerning it is passed down the line to the DP manager to help him shape his plans. What is available to him is often restricted to existing and possible projects. Most projects give little indication of the ultimate destiny of the company, planned or otherwise.

Again the DP department must take the blame for this state of affairs. Fifteen years ago, or more, there were golden opportunities to impress upon management new techniques and new ideas, to show them better ways of running their business - to instil a new dynamism in decision making.

Today because of poor system design, bad implementation and lack of imagination, many installa-



tions do not enjoy the confidence of their directors to act as advisers on the critical aspects of running the business. The majority of the systems are simply computer-based replacements for those which were originally clerical or mechanical. However integrated these may be they can only be regarded as the first phase of the more innovative approach that is urgently needed.

In spite of management education in computing fundamentals and appreciation courses, top management still has no better idea of the potential of data processing than it did in the 1960s. It desperately needs to be advised so that it can plan corporate objectives which, in turn, can be translated into a DP policy which, ultimately, capacity and manpower planning can be based.

If your installation is one of the many that failed to seize its chances in the past it is not too late to retrieve the situation. But you and your colleagues must be prepared, in the first instance, to take the initiative without management help. Once you have demonstrated your capability to plan and be ready for whatever demands are subsequently required of you then confidence in your organisation will grow.

The first is to try to predict the future course of the company, even if management does not appear to know.

It is assumed that you are aware of your company's products, the markets it is operating in and the strength of the competition. You should also know the share of the market, and thus your own position in the league table of companies providing competitive services.

Bearing in mind that it is impossible for a company to stand still - it either goes forward or backwards - try to establish where it will be in five years time.

Products do not last for ever. Some are made obsolete by new ones and some die because there is no longer any profit left in them and the company switches its investment elsewhere.

Talk to members of your sales force. Listen to their opinions, check them where possible with the financial facts from the accountants. Try to detect the phasing out of old and the introduction of new products or services. Look for problems that could be solved by the use of data processing or data capture.

Read the company's annual report. Look at trade directories for statistical data relating to the product, its market and number of competitors. Obtain copies of their annual reports.

Look for changes that tend to occur by default rather than planning. If your company is making a loss you can often predict long delays and staff reductions before they occur.

If your company were taken over tomorrow, who would do it?

If it were a competitor, what would happen to your department? If there were a competitor big enough or strong enough to take over, would the Monopolies Commission allow it? Would it be somebody outside the industry, if so who? Who has the financial muscle to make a bid? What assets does your company have to make it attractive?

These are the sort of questions the operations manager and his colleagues should be asking when looking to the future. The answers can be found within the company, by reading the trade Press, the financial pages of leading newspapers and investment journals.

Which you have carried out this exercise you should have a clear

Try to predict the future course of the company, even if the boss does not appear to know

idea of all the possible options open to your company, even if your directors haven't. Of course you will not know which of them will happen, but you may be able to categorise them into the most likely, probable and possible.

Then you can look at current developments and new DP products to see if they will fit or assist in the future shape of the company. The advent of improved communications networks using X Stream Digital Services or fibre optic cables will make a big impact on decisions concerning the distribution of processing and data input over long distances.

Local area networks are leading to the distribution of processing within the same site. This concept will be further enhanced with the availability of micros with mainframe communication features.

Whatever conclusions and decisions you come to remember that change is the order of the day. In the business world changes are wrought by shifts in the economy, by technological advances, by takeovers, management buy-outs or changes of top management.

In DP change used to mean improved cost performance for familiar boxes. Today it means a choice of bewildering alternatives with many paths leading to the unknown.

In these conditions the keyword is flexibility. The ability to respond to change and take advantage of opportunity. Therefore it is preferable to keep hardware on short-term rental or lease. Avoid purchase or long-term lease and above all be very wary of so-called flexible lease. While the future may appear to be unpredictable, the consequences of getting it wrong are not.

Who's dedicated to maintenance?

MANY programmers begin their careers in software maintenance in the belief that they can learn from code already written, and at the same time do least damage. Both beliefs are false. Existing code is seldom perfect and any imperfections will only be amplified by a trainee programmer.

Another chore commonly lumped on the hapless trainee is documentation of large chunks of turgid incomprehensible code. This fate befell me early in my lacklustre programming career, and such was the mess I made of the job that I was lucky to escape the sack.

Some people argue that the answer to maintenance problems is to have a team dedicated to it, and statistics can be produced to back up their case.

Certainly, with a dedicated department, less time is lost exchanging information. Some companies run special teams of test and maintenance analysts who file error reports and pass them up to the programmers for implementation. The turnaround on this can be staggeringly slow - at one place I worked it would take an average two weeks for a bug to be confirmed fixed after its initial detection by the test analyst. No way to work.

But a dedicated maintenance team? I doubt it. Maintenance need not be boring, but I don't mind betting it brings on lethargy if over-indulged.

The most successful programming team of my limited experience made no distinctions between its members. Everyone was involved in a little systems design, a modicum of detailed program design, and a dose of coding, testing and maintenance.

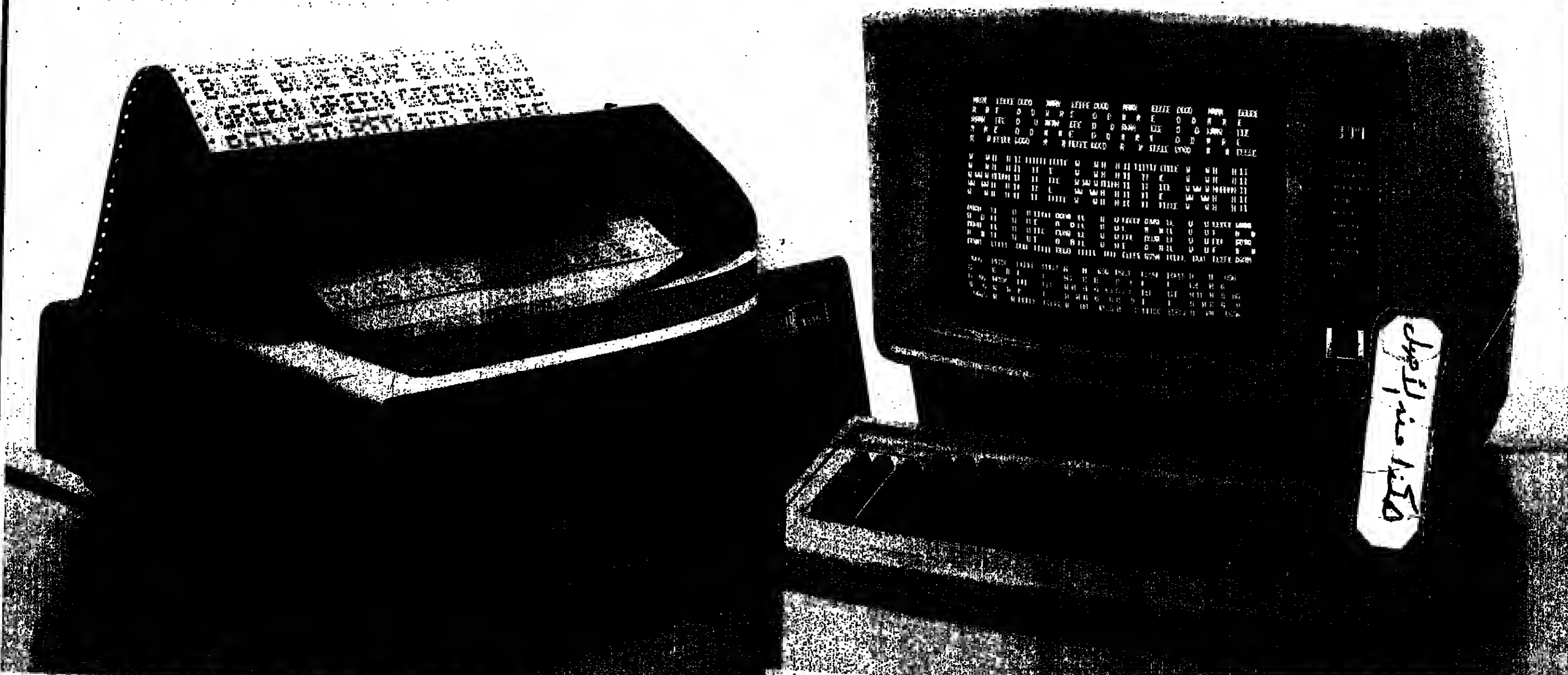
A holy blend it turned out to be since it gave a broader view of life and left people feeling used and wanted.

There was an emphasis on standards, which made maintenance a whole deal easier. Most subprograms contained less than 30 lines of code with as many comment lines, as well as a brief description of what was going on.

Maintenance was therefore a simple matter of matching what the program specification said the code did with what happened when the system was switched on - at least that was the theory.

The trouble was that the system specification did not match with what the client thought he wanted. Nobody had bothered to ask. Moral: It is useless maintaining software that nobody wants.

We put a little extra into our terminals so you get a little extra from your operators.



One look at ITT's new 3289 VDU and 33M printer should colour your judgement.

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And the printer gives red, blue and green as well as black. Not surprisingly colour makes it easier to understand data, and the more increases your operator's productivity.

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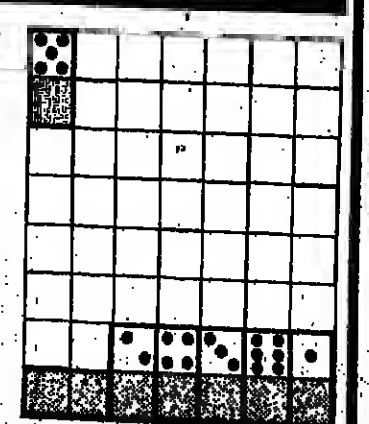
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PUZZLER

THIS week's puzzle involves laying out a complete set of 28 dominoes in an 8 x 7 grid, to make a Magic Square. In order to produce the requisite "square" the bottom row of this matrix is to consist of "blank" domino-halves.

The seven dominoes incorporating blank-halves (with the halves shown shaded) are already positioned here on the grid. The blank-blank piece is lying horizontally, and the other six vertically.

The problem is to place the remaining 21 dominoes either vertically or horizontally to fill the empty spaces, in such a way that the spots-total is a Constant 24 for each of the seven "active" horizontal rows, seven vertical rows, and



two main diagonals.
See page 39 for solution.

Manager for govt IT training centre

THE new Milton Keynes Information Technology Centre (ITEC), has appointed Peter Loud as manager. The centre was set up by the government to help unemployed youngsters gain work experience and training in new technology.

Loud was formerly a senior research engineer at Loughborough University's Institute of Consumer Ergonomics.

ITEC is mainly funded by the Manpower Services Commission and the Department of Industry, although local sources of funding are also being sought. In October it will take on 30 people between the ages of 16 and 19, who have no formal qualifications, and train them in the use of electronic office equipment, computers and basic workshop electronics.

They will be paid a weekly fixed allowance, and be expected to attend during normal working hours. Recruitment is carried out through the local careers office.

Ray Pottinger has been appointed as management services manager at Commonwealth Holiday Inns of Canada (Chic). He will be responsible for the introduction and development of computer-based systems. He has been with the company since 1977, when he joined as systems accountant.

Brian Hammond has been appointed information services manager at Unichem, the UK's largest pharmaceutical wholesaler. He has been in DP for over 18 years, and previously worked for Whitbread, EMI, Philips and NCR.

Philip Burton, formerly an external consultant to Ferranti Computer Systems, has joined the company as divisional marketing manager at the Bracknell division.

Brian Coe has been appointed marketing director at Radio Rentals. He joined the company as an engineering apprentice and served latterly as head of marketing.

William Michalenko has joined Brown Disc Manufacturing based in Colorado Springs as director of marketing. He was formerly with Control Data.



Nick Coombs has been promoted from UK sales manager to general manager of components firm Burr-Brown. He joined the company in 1976 as a senior sales manager, and was later appointed regional sales manager for the Eastern area of the UK, and Scotland. Before joining Burr-Brown he was a sales engineer at Analogic.



Walter Hayford has been appointed managing director of Triumph Adler's UK operation. He has been with the company since 1979 and was previously general manager. Before joining Triumph Adler, Hayford was financial director and a shareholder in Robophones, a company that is now owned by Exchange and Telegraph.



Freelance microsystems consultant Wayne Moulder has joined Grundy Business Systems as the company's adviser for the NewBrain portable microcomputer. Two years ago Moulder was involved in setting up the microcomputer division of Leasco Software, which later was to become Grundy's first NewBrain OEM customer.



Sandi Davies has joined Pacesetter International as senior programmer. She began her DP experience as a graduate programmer at ICL. From there she went on a program with DataSoft France and later moved to PMA Consultants a programmer. For the past two years she has been lead analyst at Xerox.

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c/w



Graham Etchells, Andrew McCausland and Philip Pittington have joined Calma as applications engineers on the mechanical engineering side. Etchells was previously with GEC Traction, McCausland joins from the Department of the Environment, and Pittington was previously with Marconi Space and Defence. Also joining the company is Alan Hall. Formerly with Crofield Electronics, Hall becomes a microelectronics applications engineer at Calma.

David Hazlewood has been named president of Westinghouse Management Systems SA. He was previously UK manager, and has been with the company for nine years.

Ron Miller has been appointed managing director of Hermes Presses UK. He has been with the company for nine years.

James Clemence has been appointed senior consultant at Insight Marketing and Personnel Consultants. He was previously UK sales manager with Anderson Jacobson.

DIARY

SEPTEMBER 8
OTL Gives Voice to Information Management. Meeting on OTL's Information Management Processor. Institute of Information Scientists WP and computer information systems special interest group. OTL, London. Tel Helen Harris on 01-229 5069.

SEPTEMBER 14
Expert Systems. Speaker Alex d'Ameyeff. IDPM West London to Oxford branch. Bell House Hotel, Beaconsfield.

SEPTEMBER 19-24
Industrial digital and microprocessor-based control systems. IEE. Vacation School at Balliol College, Oxford. Details from IEE, 01-240 1871.

SEPTEMBER 23-24
Information systems – analysis and design workshop. BCS. Open University, Milton Keynes. Details Guy Fitzgerald, 01-854 2030, ext 377.

OCTOBER 5
The impact of the new technology on management. Speaker David Fairbairn, director of NCC IDPM Scottish branch. British Institute of Management. Merchants House, 7 West George Street, Glasgow.

OCTOBER 6
Impact of new technology on management – challenges and implications of IT for the workplace. Speaker Ted Cluff, secretary-general IDPM. IDPM Scottish branch – Institute of Management. Lecture Theatre, College of Commerce, Aberdeen.

OCTOBER 12
Visit to Thames Valley Police Computer Centre. IDPM West London to Oxford branch. Thames Valley Police Computer Centre, Kidlington, Oxford.

JANUARY 5-6
Viewdata. Conference on the state of the art. Institute of Information Scientists WP and computer information special interest group. Details Mrs Bird on 01-645 2000 ext 8611.

COURSES

ADM has expanded its programme of microcomputer training courses, and is now running eight different courses on this subject. There are two new state of the art courses aimed at DP personnel – The Application of Micro Database and Microcomputer Communications and Networks. Other courses include: Microcomputers – A Technical Introduction; Microcomputers – A Systems Introduction; Microcomputers – Advanced Systems Design; Introduction to CP/M; and Advanced CP/M. Users are offered a three-day introduction to micros course, and the Basic language is covered by two courses, Basic Language Review and Basic Language Program-

ing. Details from Ron Humphreys on 01-863 0621.

BIS Allied Systems is presenting a three-day workshop for technical staff and management who require a view of the current local area network developments in information systems. Delegates will examine design and implementation techniques and application areas from a management point of view. The course also looks at the impact of LANs in the integration of the automated office. Cost per delegate is £360+VAT and the workshop will have its first presentation in London from November 16-18. Details from Cherry Bignone on 01-261 9237.

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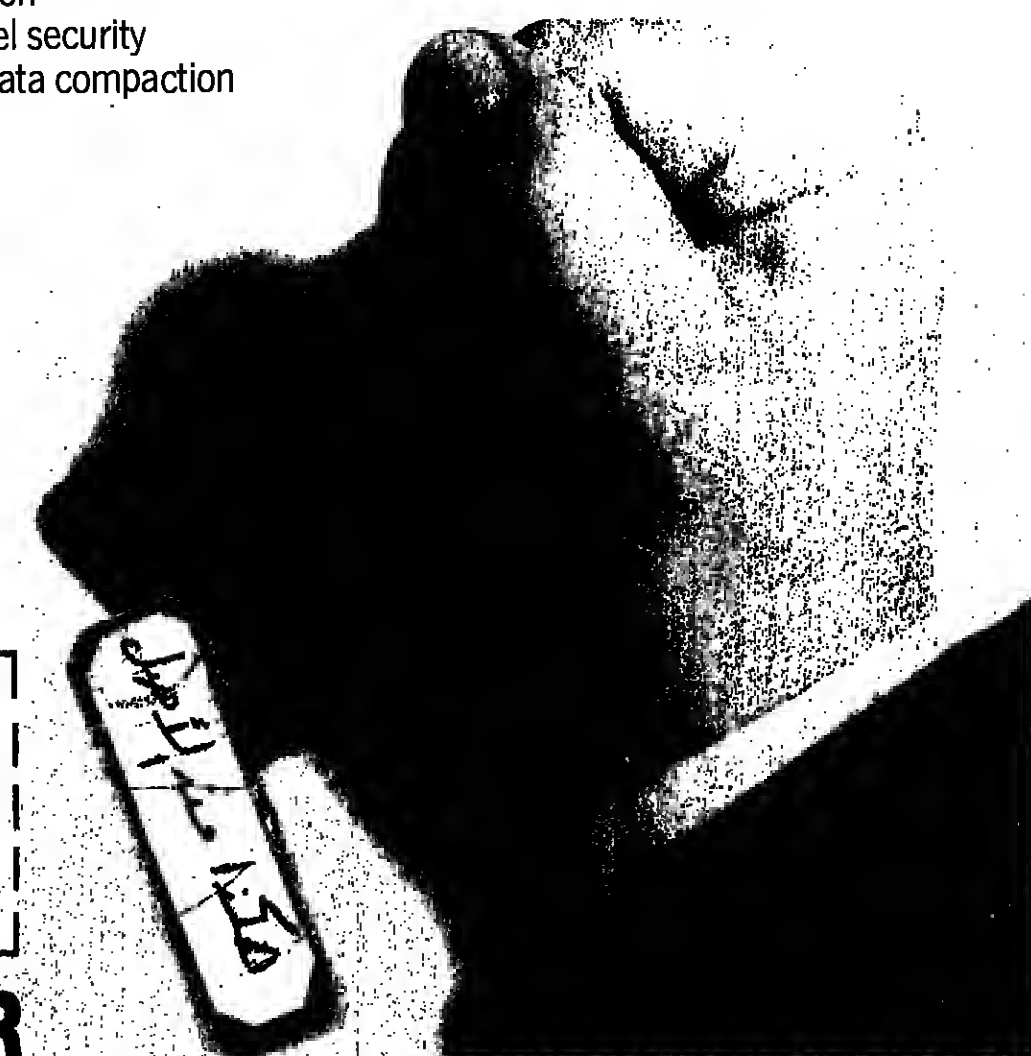
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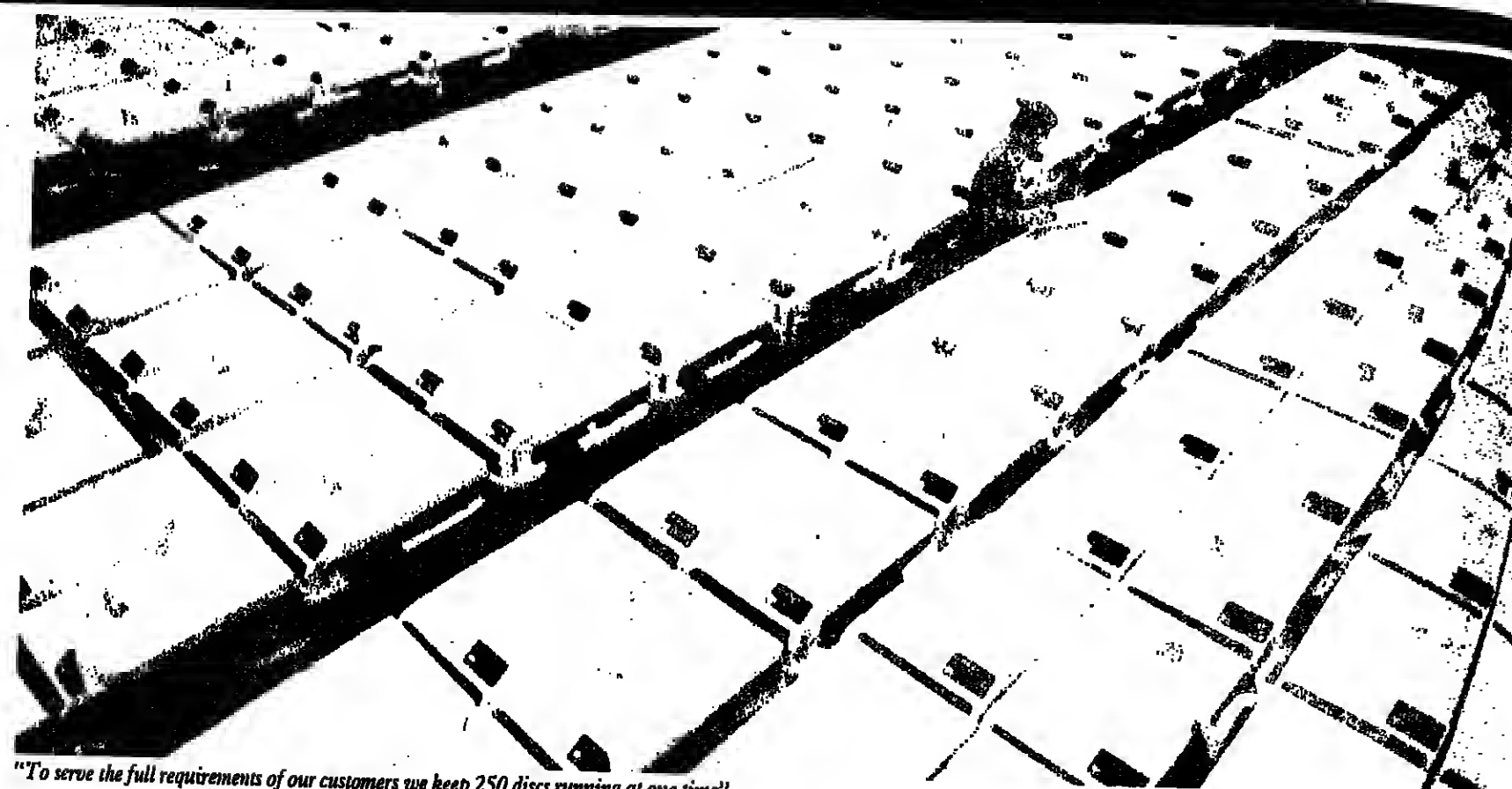
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PERKIN-ELMER



If you have £10m a year to spend on computer hardware, how do you choose your vendor? Kevin Cahill went to Germany to see how the world's largest independent commercial DP bureau, Datev, implements a unique dual vendor policy



"To serve the full requirements of our customers we keep 250 discs running at one time".

Dual vendor policy at the world's biggest independent bureau a threat to IBM?

THE problem with Datev is that it encourages too many superlatives. It is one of the biggest, maybe the biggest, independent data processing bureau in the world.

The company, organised as a co-operative, has a turnover of over £30 million, a membership of 20,000, and a main database containing the current accounts of 800,000 companies.

Based in the southern German city of Nuremberg, Datev, from its massive data centre in Albert Dürer's birthplace, serves a user population of 25,000 terminals, via 21 communications concentrators scattered throughout the rest of the country.

The bureau is 15 years old and has done most of its growing at an average rate of 20% a year at a time when most big and some not so big bureaux are going out of business. So what's special about Datev? Heinz Seiberger, the chairman, chief executive and founder, explains as he gazes across a "desert of discs" in the data centre.

"Datev is specialised. It serves only one end user, its tax consultant owners, and via the consultants the 800,000 companies who are its owners' clients."

Seiberger pointed to the row upon row of discs. "To serve the full requirements of our customers we keep 250 discs running at one time. The main database of live current accounts is located on just 60 discs, but there is also our Lexinform database, holding all the relevant laws affecting tax and accounting, plus a series of commen-

taries from the main legal journals. This amounts to about 53,000 pages of documentation."

The massive array of disc units is a mixed collection of Siemens/Fujitsu and IBM drives, principally 3310, 3320 and 3330 units.

The first two IBM 3380 disc drives are being readied for use in the background, but Seiberger is thoughtful when he refers to the 15 months he had to wait to get them. "We had to go to Siemens/Fujitsu for a whole lot of their 3342 and 3346 units while we were waiting."

He was not precise about what the delays might have cost IBM, but the impression is that more than half the order went East in the interim.

Seiberger says he is an IBM customer in the full sense, which is easy to see in the CPU centre which itself contains two 3033s and a series of other IBM machines

including a 3081D which has only been there for six months and is now being replaced by a 3081K, 40% more powerful than the D.

"We are not a PCM site. What we have, is a dual vendor policy. All our software, including the main databases, are written in IBM software, so we have to be IBM compatible."

But here Seiberger makes a point seldom fully articulated in the industry. "You are not truly independent of IBM until you have a supplier who can provide you with a complete set of systems software."

Which brings him to the other processors in the data centre. Decked out in the Siemens colours, and with Siemens numbers, the two principal processors are nonetheless a Fujitsu M180 and a Fujitsu M200. Until recently these were the top end of

the Fujitsu range, but Seiberger has more ambitious plans.

He is due to visit Fujitsu in Japan within weeks and implies that while there he will be indicating that he intends to become the first European commercial customer for the 22 mips M380. This is the machine ICL now sells as the Atlas 10.

Seiberger already has the Fujitsu operating system in use in his data centre on one of his machines, the M200.

Datev technical director Peter Tennert explains that they had problems initially, but only because the main database is a version of Stairs, built around T CAM.

The Fujitsu operating system, called in its Siemens disguise BS5000, only supports VTAM.

Tennert also noted that the highest volume of unscheduled initial program loads was in MVS, on IBM's own machines.

"With MVS loaded on a Fujitsu machine there was a fall in unscheduled initial program loads, but the lowest number of unscheduled initial program loads was on the Fujitsu machine running its own operating system."

Datev's entire system, while based on IBM systems software, has been heavily amended by the company's own programmers.

According to Seiberger any machine in the centre must have uninterrupted access to the entire data pool - which explains why a Datev has 260 programmers on the staff.

But the main programming problem, and Seiberger's ultimate guarantee against the micro making his huge organisation redundant, are application program changes.

Last year the data centre director instituted 2,450 application program changes, mostly as a result of changes in legislation.

At one point last year Datev had less than a month to make a series of major payroll tax changes which affected payroll run by more than half the company's membership.

Seiberger suggested that a small company with a standalone micro installation could not hope to cope with the conversion costs whereas Datev could do the job for all 800,000, in one go at lower cost.

The main hardware budget is over £10 million a year.

Datev's entire operation is split into five units, each independently treated under the dual vendor policy and in terms of management control.

The principal units are the terminal network, with 10,000 online terminals and 15,000 batch terminals.

Between the terminals and the data centre with its collection of

"You are not truly independent of IBM until you have a supplier who can provide you with a complete set of systems software"

CPUs is the communications network, with the 21 concentrators scattered around Germany. These have brought over 40% of the user base on to a local call charge for all their work.

The database storage system, in effect the disc units, are treated as a separate unit, and finally there is the output unit.

Most installations would not have bothered to constitute their printers as a separate part of the system, but Datev has, so far, 19 laser printers, seven from IBM, 11 from Siemens and one from Xerox.

The output, which also seems to account for the bulk of Datev's workforce of 1,600 is 30 tons of paper a day.

This is despatched, in separate packages, to about 16,000 addresses each day, mostly in the form of profit and loss accounts and balance sheets.

Datev also has a room full of microfiche printers which produce over 1,000,000 fiche pages a month.

But the Datev organisation, technically huge and impressive as it is, could easily conceal the real importance of the company in Germany. Datev now represents most of the data processing activities of

most of German's accountants and tax advisers.

A lot of the work is simple accounting for the smaller client and the accountants, many of whom could not afford their own computer.

Periodically, Tennert and his staff prepare a new terminal specification, which they circulate to interested vendors.

In theory potential sale of 25,000 are the lure, although Seiberger insists that he will never sign a manufacturer any form of initial contract or minimal volume guarantee.

In practice the Datev specification has begun to assume the form of a terminal standard with the potential well beyond the company's own immediate users.

Currently Triumph Adlet, alongside Olivetti and Klein, are the key suppliers of terminals to the Datev membership, and beyond it to the many clients of the membership.

This pace-setting influence is the terminal marketplace has been with Datev for some time, but it is now beginning to have a leadership influence in communications and mainframe use too.

According to a number of German magazines, Seiberger is the second most important man in the German computer industry, after Heinz Nixdorf.

And as a user of vast experience, with his network of data communications connecting the most influential professionals in the commercial world to each other and to their clients, Seiberger has enormous muscle.

He does not complain about IBM; neither does he criticise the company, but he does make clear the endless problems he has had to solve because of the size and the flexibility of his principal supplier.

Despite his even-handed approach to IBM, his predilection for a vendor whose designers he can talk to and which will consider his suggestions at the design phase, are obvious. And on that basis he is undeclared, but preferred vendor to Fujitsu. So much so that a comparison of his dealings with that company and the first papers from the fifth generation project drove Seiberger to consider sending four or five of his staff to Japan for a series of three-year tours.

Datev is one of three bureaux which have a somewhat similar structure. One is based in Paris; the other, TKG, in Tokyo. On his trip to Japan Seiberger is hoping to organise a permanent satellite link between TKG and Datev.

Obviously, the contents of the databases will not be exchangeable, but Seiberger hopes to develop development tools and expertise with his Japanese partners, further tightening the links between a European user of Japanese technology.

fluency, and the growing reliance of Japanese technology.

STATE OF THE MARKET

John Aczed reports on the marked decrease in value of foreign sales

British exporters face tough competition as prices are cut

BRITISH exports of computer products have been affected by price cutting and tough competition has been reported in some markets. Sales volumes abroad have been well maintained, but considerably lower prices have been charged for some products in recent months.

According to the latest trade figures, which refer to February 1982, exports of peripheral equipment amounted to 27,400 units, and this represented a rise of 2.6% compared to the previous month. In value terms, however, there has been a drop in sales, with deliveries abroad amounting to only £28.3 million in February as against £30.3 million in the previous month.

Evidently, the cost per product has dropped markedly in this period. In January the average price was over £1,100 and this fell to about £1,000 in the following month. The drop was particularly

significant, as British exports already benefited from a fall in the value of the pound against other currencies.

The most significant decline in sales has been recorded in Western Europe, particularly in West Germany. Deliveries to Germany amounted to only £4.3 million, representing a drop of 30% compared to the previous month. Exports to Italy were also down and showed an average drop of 10% in this period.

In contrast, British exports have recorded some gains in North America, especially to the US. They advanced by 12% to nearly £1.2 million, although this figure was still below that seen at the end of 1981.

In terms of product groups the trend was mixed, but higher exports were reported for disc storage units as well as for other types of storage facilities. Sales of printers edged up and showed a rise of

8% by value, but deliveries of VDUs were considerably lower; they dropped by 28%, while in volume terms, only 9,700 were exported during February.

Imports of some computer products were higher during February, and for the peripheral sector as a whole they amounted to £46.9 million, a rise of 7.5% compared to January. By volume, imports remained steady and amounted to 55,400 units.

The figures reveal that the US has increased its market penetration of the British market and its sales reached a peak of £28.5 million. They accounted for 60% of total imports for peripheral products, but other suppliers have also made further inroads into the British market. In particular, West German manufacturers have increased their sales to the UK and reported deliveries of £4.5 million.

Imports from Japan have been fluctuating, but they recorded a

useful increase in February compared to the previous month. They amounted to £1.5 million in this period, but were still lower than at the end of 1981.

A marked increase in imports of VDUs has been reported, with the total reaching £6.7 million in February at an average price of about £600 per unit. Imports of storage units remained relatively steady, amounting to nearly £13 million in February as against £12 million in the previous month, while printers used in the computer sector moved up marginally to £8 million.

Undoubtedly, British exports should increase in the coming months and will benefit from the relatively low level of selling against other currencies. Further growth in volume terms will be seen, but whether this will be reflected by value is debatable, because of the significant price cutting which is now evident in many markets.

	February 1982	January 1982	September 1981
	No.	No.	No.
Peripheral units			
Disc storage units	1,516	1,758	7,053
Magnetic tape storage units	225	375	1,804
Other storage units	112	212	447
Printers	2,666	3,422	7,689
Readers and punches	134	91	873
Visual display units	9,729	12,580	54,197
Other terminals and consoles	326	309	1,811
Other peripheral units	12,679	7,071	36,681
Offline data processing equipment			
Punches, verifiers and calculators	53	9	326
Other equipment	558	258	5,433

British exports of computer equipment by product groups (by volume).

	February 1982	January 1982	September 1981
	£000	£000	£000
Belgium-Luxembourg	693	332	3,287
Canada	340	490	2,290
Denmark	421	403	1,199
France	2,777	2,084	9,071
Germany (West)	4,480	3,842	13,396
Ireland	1,051	778	4,614
Italy	1,900	3,303	16,030
Japan	1,563	1,082	6,862
Netherlands	1,855	2,455	6,660
Spain	312	568	7,059
Sweden	915	919	5,763
US	28,496	25,922	112,099

British imports of peripheral equipment (by main suppliers)

	February 1982	January 1982	September 1981
	£000	£000	£000
Peripheral units			
Disc storage units	10,083	9,331	39,729
Magnetic tape storage units	2,090	1,464	12,379
Other storage units	562	1,352	2,668
Printers	8,044	7,666	39,174
Readers and punches	487	230	1,186
Visual display units	6,669	4,885	21,555
Other terminals and consoles	2,355	2,600	11,867
Other peripheral units	16,694	16,059	72,220
Offline data processing equipment			
Punches, verifiers and calculators	88	46	317
Other equipment	802	1,038	4,586

British imports of computer equipment by product groups (by value).

	February 1982	January 1982	September 1981
	No.	No.	No.
Peripheral units			
Disc storage units	11,765	9,375	38,017
Magnetic tape storage units	1,612	1,402	11,925
Other storage units	400	714	3,280
Printers	11,691	12,725	57,638
Readers and punches	12,221	8,325	1,971
Visual display units	10,845	8,857	33,391
Other terminals and consoles	2,003	3,147	13,465
Other peripheral units	16,704	19,037	83,367
Offline data processing equipment			
Punches, verifiers and calculators	236	48	841
Other equipment	2,308	3,088	8,087

British imports of computer equipment by product groups (by volume).

	February 1982	January 1982	September 1981
	£000	£000	£000
Belgium-Luxembourg	1,449	889	5,596
France	5,287	5,337	24,694
Germany (West)	4,300	6,167	30,387
Italy	3,044	3,346	15,681
Netherlands	1,072	976	6,285
Norway	383	775	1,392
Saudi Arabia	1,367	2,144	3,562
South Africa	1,629	1,089	5,178
Spain	846	864	4,786
Switzerland	983	1,493	6,118
Sweden	1,253	1,382	6,272
US	1,157	1,028	7,001

British exports of peripheral equipment (by main markets).

	February 1982	January 1982	September 1981
	£000	£000	£000
Peripheral units			
Disc storage units	3,692	3,546	17,123
Magnetic tape storage units	277	294	3,446
Other storage units	203	369	1,331
Printers	2,530	2,342	11,581
Readers and punches	755	381	4,036
Visual display units	9,982	13,817	56,752
Other terminals and consoles	571	1,198	4,355
Other peripheral units	10,273	8,395	42,344
Offline data processing equipment			
Punches, verifiers and calculators	20	20	57
Other equipment	363	285	1,985

British exports of computer equipment by product groups (by value).

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BCL Processors - 8 lps parallel Computer from Mobile Printing
IBM 3380 Data Module - Newbury Labs, VDU 7004, 7005, 7006, 7007
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Portable teleprinter 'a first'

WHAT is claimed to be the first portable teleprinter terminal using a dot matrix impact printer has been launched in the UK by Teleprinter Equipment, part of the CAE group.

The TE Victor 745 Portable uses plain and multi-PLY paper, keeping operating costs to a minimum, but still costs less than most existing thermal printers on the market, says the company.

Teleprinter Equipment sees the unit as the first "wide-purpose" portable terminal allowing access to data communications system from any location. It comes in a moulded briefcase complete with adjustable acoustic coupler to fit all standard phone sizes, and hardware port for connection to an external modem.

In its briefcase with coupler the



The TE Victor 745 portable terminal

unit weighs approximately 20 lbs and measures 14 by 12 by 4 1/2 inches. For printing the unit has 14 alternative type sizes - which range from five to 20 characters an inch.

Therefore the unit's size does not restrict it from reproducing full 132 character columns.

A 30 cps printing speed is assured and, in the graphics mode, it

operates at 120 dots/inch horizontal and 60 dots/inch vertical. It has an exceptionally high ribbon cartridge life of 10 million characters and the unit's modular construction means that, if necessary, all servicing is quick and straightforward.

CAE (CW), Akeman Street, Tring, Herts HP23 6AJ. Tel: (0442 82) 40011/5551.

VDU that is VT 52 compatible

A VDU that is fully VT52 compatible and has an additional AFL character set is available from Hardware Dynamics. Known as the XT52/APL, features include split screen, line editing, type-writer style keyboard with separate numeric keypad and an automatic repeat on all keys that ramps from 10 to 30 cps.

In its standard mode the terminal displays all upper and lower case ASCII characters as well as all VT52 graphics symbols.

The XT52/APL has a serial asynchronous EIA RS232C compatible I/O port for communication with any computer, communications network or other peripheral unit.

Speed of operation can be selected at all the usual speeds up to 19,200 baud with full duplex operation either with or without local echo and using XON/XOFF protocol. An internal 32 character buffer is used to ensure that data can be transmitted at maximum speed without interruptions.

Hardware Dynamics (CW), 103 Colleton Drive, Twyford, Berks, RG10 0AX. Tel: (0734) 341916.

Rair launches top-end Black Box

RAIR has launched its top-of-the-range microcomputer system, the Rair Black Box Model 3/50. It has an increased running speed of nearly 70% over Rair's previous top-end machine, the Model 3/30.

The new model uses state-of-the-art 64K dynamic RAM on Rair's recently announced full 256 Kbyte MOS memory board. These provide 256 Kbytes of high speed MOS memory on a single 10-inch by 4.5-inch board. By adding four such boards, the Model 3/50 expands to offer a one Mbyte of dynamic RAM high speed MOS memory.

The Model 3/50, which is built around an Intel 8085 microprocessor, also offers users increased processing speeds. It runs at five Megahertz compared with the Black Box 3/30's running speed of three Megahertz.

Eight I/O ports are provided as standard, and the Black Box 3/50 will run under Rair's multi-user operating system MP/M II, an enhanced version of the MP/M system. Additional facilities such as file and record locking, time and date stamping, and the use of multiple printing terminals are provided. The 3/50 is fully compa-

Gould releases its 'most powerful' 32-bit mini

GOULD SEL has launched in the UK its newest and most powerful super-mini computer, the Gould Concept 32/8780. The new system is more than five times faster than closely priced competitor, claims Gould, and achieves its processing power from a combination of parallel processors with high-speed ECL technology and very large cache memories.

The parallel processors, the Central Processing Unit (CPU) and the Internal Processing Unit (IPU) work together to share the workload in a multi-stream environment. This enables the system to process two different instruction streams simultaneously and to handle more work in a given unit of time.

The CPU handles all I/O and interrupt processing, while the IPU handles compute tasks. Both

processors have their own floating point hardware and are implemented with high-speed 10,000 series ECL technology chips.

The CPU and IPU possess very cache memories which enhance system performance by improving the cache "hit rate". The 32/8780 is provided with 32 Kbytes of 75-nanosecond cache memory in both the CPU and the IPU. It has the largest cache memory of any super-mini computer on the market, claims Gould. Optional 32 Kbyte cache upgrade kits can also be added to the CPU and IPU.

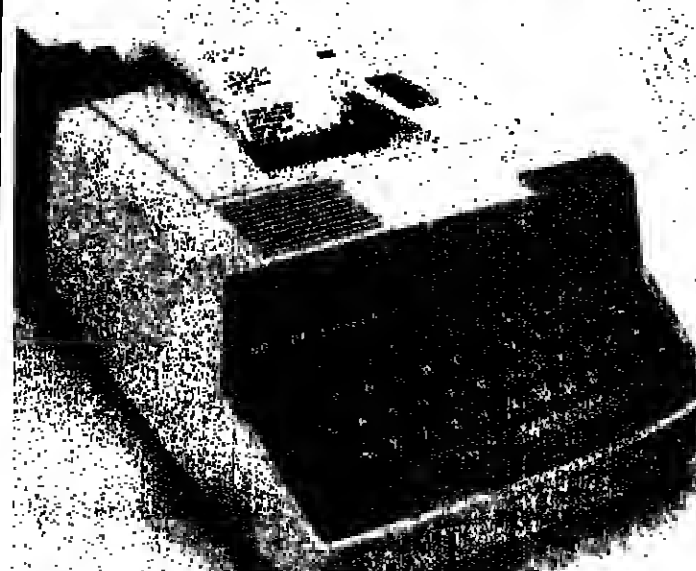
The performance of the 32/8780 was evaluated using the Whetstone I Benchmark, which is the industry standard for measuring single-precision floating-point computational capability. Two separate tests were conducted, using un-optimised and optimised codes.

The first run, with the un-optimised code produced by the Gould SEL Fortran 77 plus compiler, resulted in a processing rate of 6.69 million Whetstone Instructions per second (M whets/sec). This represented approximately twice the processing power of its closest competitor.

The second test of the 32/8780 used optimised code, and produced a 17.477 M whets/sec. This represents a 262% improvement over the un-optimised run.

The company has also announced Quadabyte, a 32-bit board-set computer and the first Gould SEL product to be specifically developed for the OEM market.

Gould SEL (CW), Raffle House, 2-4 Sutton Court Road, Sutton, Surrey SM1 4SY. Tel: 01-643 8020.



The Weyfringe Lobelstore.

Printer saves time on high-volume labelling

THE Labelstore computerised address label printer from Weyfringe has been designed to cope with high volume address labelling, and is aimed at businesses with a heavy commitment to mail shots, circulars or regular correspondence.

It is delivered fully programmed and ready for use. It is complete in itself and requires no online computer. It has 15K system memory and 280 microprocessor which offers full-scale storage, sorting and retrieval of data at high speed, with the minimum of operator input, says Weyfringe. It is transportable and can be used wherever mains power supply is available.

Data is typed in on the standard Qwerty keyboard and then fed

on to a mini-cassette which can store up to 146 addresses on either side. Accuracy is aided by a single line alphanumeric LED display which shows operator prompts and displays the text line by line for checking and editing before committing the data to print.

The Labelstore has a high definition 7 x 5 dot matrix printer which can print the full 96 alphanumeric ASCII character set in upper and lower case. It has 110 cps printing speed on a seven lines x 26 characters format. In addition, each label individually coded for flexibility of printout - e.g. alphabetically, by postcode or by company.

Weyfringe (CW), Longbeck Road, Marske, Redcar. Tel: (0642) 470121.

Tape drive from Cipher

CIPHER Data Products has announced a third generation tape drive which emulates startstop machines at any standard tape speed in the range 25 to 240 ips. Called the CacheStream, the drive is compatible with all existing tape operating software.

Key to the CacheStream's performance is Cipher's microprocessor controlled Electronic Capstan. This is a 64 Kbyte elastic RAM in which data is stored upstream or downstream relative to the physical read/write head.

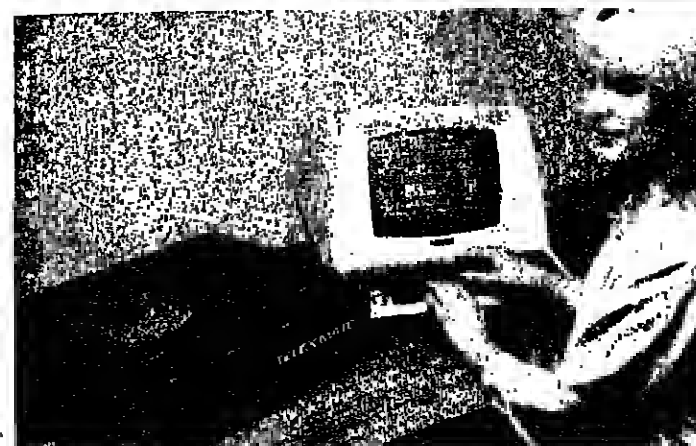
CacheStream accepts 1 mil tape which increases maximum storage to 61 Mbytes at 1,600 bpi and 122 Mbytes at 3,200 bpi. Cipher Data Products (CW), Compton Place, Surrey Avenue, Camberley, Surrey GU15 3DX. Tel: (0776) 682212.

Arbat moves into EFTS

ARBAT has announced an interface between its banking system ABS and its Swift package.

Integrating the ABS and Swift products, the new interface is a move by Arbat towards full electronic funds transfer systems (EFTS). It allows movements made through the bank's internal banking system on ABS to be passed straight into the Swift system for immediate processing, handling such things as foreign exchange.

The product will cater for a range of processing needs, including loans and deposits and foreign exchange transactions. The interface costs £1,000 and is already installed at Norfolk Bank, Arbat (CW), 164 Oakley View, St. Albans, London AL1 1JL. Tel: 0448 64997.



Telex-Mate, the telex preparation system from Rockhall.

Giving more people fast access to telex

WITH an addition to its range of telex preparation units, known as Telex-Mate, Rockhall claims to bring the advantages of modern text processing to telex preparation.

Using Telex-Mate as the link, normal office machines, such as typewriters, VDU screens, word processors and computers are able to prepare telex messages, says Rockhall, thereby giving more people fast access to telex as a means of low cost communication.

In addition to the screen and typewriter-based systems, standard Telex-Mate connections are available for word processors such as IBM, Olivetti, DEC, Wang, Dsta Logic, Caltext and most computer and microcomputer systems.

Telex-Mate, ready for connection to any of the above word processors, can be obtained for £33 a month.

Rockhall (CW), 1 Park Rise, Leicester LE3 6SG. Tel: (0533) 874097.



The new Datalot graphics system from Grafax.

Advance in graphics

A RECENT development allows colour graphics to be produced from a powerful, high speed, microcomputer database. The system is called Datalot and has been developed by an Oxford graphics company, Grafax.

The Grafax database uses a multi-level file structure. This results in easy retrieval and the ability to compare data from widely differing sources, says Grafax.

Multiple users may simultaneously and rapidly access the same data, each creating a complete graph within a few seconds. A preference in the type of presentation is quickly implemented, as changes to the colours, line style or graph type are made simply.

Another feature provided by the

database is the ability to scroll forwards and backwards through time without the need to specify the time periods being viewed. Statistical routines, such as moving averages and regressions, may even be plotted on the same graph as the original data providing considerable assistance in assessing trends and making forecasts.

Data entry uses a very rapid question and answer technique. This means that graphs can be produced from up-to-date information in the City, for instance. Key-strokes are minimised throughout.

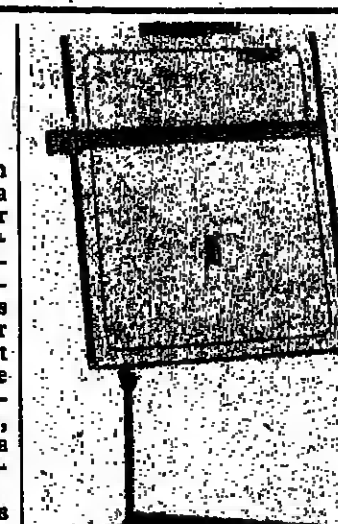
Grafax (CW), 35 St Clements, Oxford OX4 1AB. Tel: (0865) 42597.

Expandable system

A MAJOR new product from Southwest Technical Products (Computers) Co is the S+ modular computer system. It offers the advantage of being capable of extension from a small business installation up to maximum capabilities through the use of modular hardware and software. In its most basic form the system can be supplied as a single user installation with floppy disc storage, allowing first-time users to install a low-cost system which can subsequently be expanded as required.

A feature of the S+ system is that expansion can take place using the same hardware and software. The basic installation is capable of expansion to accommodate up to 32 users, a main memory of one megabyte and almost unlimited hard disc storage capacity.

Southwest Technical Products (Computers) Co. (CW), 12 Tresbarrow Road, Orton Southgate, Peterborough PE2 0SG. Telephone: (0733) 234433.



THIS copy holder from Trend Communications can be free standing or positioned under the base of the printer. In the case of the Trend 880, the copy holder may be attached directly to the printer.

Trend Communications (CW), Knaves, Beech Estate, Loudwater, High Wycombe, Bucks, HP10 9QZ. Telephone: (06285) 24977.

The next train information will be synthesised

A MICROPROCESSOR-BASED speech synthesis system, which uses digitally-recorded words to make standard announcements, is available from Bedfordshire-based Ripper Systems. A typical installation could provide a series of announcements from a vocabulary of 30 words for about £1,000 a unit.

The new system will have applications in railways and other forms of public transport which require high voice-quality automatic announcements. Another application is the provision of verbal fault and warning announcements in civil and military aircraft and land transport and also in static installations such as process-plant control rooms. The system could also be used to provide fire warning and evacuation advice in hotels, offices and industrial premises.

The system is based on a microprocessor and a memory which stores the digitised vocabulary. The basic 30-word system is housed in a casing measuring 12 inches by 8 inches by 4 inches and this also incorporates the message-selection key-pad, power pack and monitor loud-speaker. An EPROM is used for vocabulary storage.

Announcements are formed from the vocabulary when the system receives a digital command input. The system can interface with a keyboard, a database such as a train descriptor, or the digital output from a computer or fault or alarm monitoring installation.

The Ripper equipment gives a customised vocabulary by first converting the required words or sentences into digital form for sto-

rage in the EPROM. When a word has been recorded, the audio waveform is sampled electronically at a frequency between 3kHz and 64kHz. This divides the word into a series of time periods.

Each time period is then subdivided into eight parts and the signal converted into eight bit words which can be stored in a computer memory and recalled to recreate the sound of the word. The fidelity of the resulting sound is related to the sampling frequency, with good reproduction provided at the highest frequency of 64kHz.

This, however, requires a large amount of memory to store the digital information and the most cost-effective recordings with the Ripper system are produced between 10kHz and 20kHz.

In addition, compression techniques are available which reduce further the amount of memory required. These techniques include processing alternate time periods and deleting pauses in speech patterns.

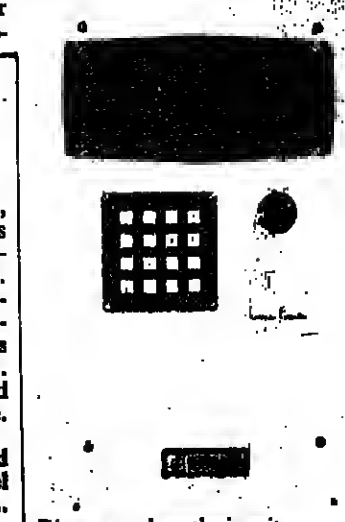
While initial applications for the Ripper digital speech synthesis system are likely to involve vocabularies measured in tens of words, the use of high capacity storage, such as bubble memories, makes vocabularies of up to 500 words feasible. Any language can be synthesised by the system.

Ripper Systems (CW), 281-283 Bedford Road, Kempston, Beds. Tel: (0234) 854080.

Printer stand

A KNOCK DOWN printer stand, launched by Data Efficiency, is constructed from steel and finished in autumn brown paintwork. It comes in two sizes to accommodate most leading makes of printer. A chrome wire basket is supplied for printout collection. The stand comes packed flat and assembly is both quick and simple. Prices start from about £89.15.

Data Efficiency (CW), Maxted Road, Maryland Avenue, Hemel Hempstead, Herts HP2 7LE. Tel: (0442) 63561.



Ripper speech synthesis unit.

Printout on the move

INMAC has introduced a new design of printout caddy that can store and transport up to 13 two-inch thick printout binders. Running on four castors, it can be easily moved around to exactly where the printout is required and, at a height of 28in, is suitable for desk-side use.

The carrying bars are adjustable to allow any size of binder to be stored from 13in to 20in wide (from 80-column to 132-column printout). The binders are stored using drop-in suspension filing with the spines facing upwards to enable easy location of a required file.

The printout caddy costs £75, and is manufactured from steel and finished in brown and beige enamel. The Inmac free catalogue gives details of the wide range of other computer accessories and cables available on the company's next-day delivery service.

Inmac (UK) (CW), 18 Goddard Road, Astmoor Industrial Estate, Runcorn, Cheshire WA7 1QF. Telephone (09285) 67551.

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The Viaphone system for transmission of X-rays.

System sends X-rays by telephone

A PORTABLE system for the telephonic transmission of digital picture information, developed by Svenska Elektronikprodukter AB, Lund, enables hospital X-ray departments to transmit X-rays by telephone to doctors in their homes or surgeries.

Intended primarily for medical purposes, it can also be utilised in other sectors, for example marketing and journalism.

Called Viaphone, it consists of a transmitter at the hospital and a receiver at the doctor's home, both of which are connected to the ordinary telephone network.

X-rays are fed into the transmitter in the form of video signals from a TV camera or directly from the hospital's existing computer tomograph, ultrasound or digital radiograph equipment. The video signals are transformed to digital information and the digital picture

appears on a monitor attached to the transmitter.

Once the picture has been approved by the sender, it can be "frozen" and stored in memory. Picture resolution is 65,000 picture units, each with 64 grey levels, comparable to computer tomograph pictures.

Two minutes are required to transmit one picture to the receiver. Up to six pictures can be stored in the computer memory, and doctors can quickly compare them with the help of a keyboard on the receiver.

The system can reduce the number of hospital visits made by doctors to check X-rays and will also be of value in areas where there are long distances between patients and X-ray units.

Svenska Elektronikprodukter AB (CW), Linnegatan 42, S-114 47, Stockholm.



Inmac's printout caddy.

VDU has built-in intelligence

THE FACIT 4411 video terminal, now available from Hi-Tek, features built-in microprocessor intelligence and an ASCII keyboard. It is aimed at managers and engineers in business, and the scientific and industrial markets. The terminal has internal control over display generation, screen-editing and printer-control functions normally handled by a central computer, and incorporates a V.24 (RS232C) interface and an optional current loop interface to facilitate communication with most computer systems.

The terminal includes semi-graphics capabilities which allow it to produce graphs and histograms. This 4411 incorporates a full screen formatting facilities as well as the added ability to transmit pure, unprotected, data. If required, to reduce communications overheads.

Hi-Tek Distribution (CW), Trafalgar Way, Bar Hill, Cambridgeshire CB3 8SQ. Tel: (0954) 81931.

Maintenance service for 'any micro or terminal'

DATA Dynamics is introducing service and maintenance facilities for most terminal or microcomputer systems. The company will carry out routine preventative maintenance at regular intervals and offers a 24-hour emergency breakdown service. In a bid to encourage customers to take out service contracts, the company will extend the normal six month warranty on new equipment to one year for just £30.

Data Dynamics has three service centres in the UK: one at Hayes (Middlesex), one at Manchester and one in Edinburgh. Faulty equipment is, whenever possible, repaired at a customer's location.

The full agreement will include all breakdown calls, replacement parts, labour and travelling costs (within the UK mainland). Since the maintenance offered covers such a wide range of equipment, individual quotations will be given to customers supplying details of their equipment, model number, and serial number.

Data Dynamics (CW), Data House, Clayton Road, Hayes, Middx. Tel: 01-848 9781.

Keeping discs in order

A new system designed to help microcomputer users maintain their floppy discs in retrievable and filed order is available from MC2. Called the Safer disc storage system, the unit comprises housing with dividers, reference cards for word and data processing, and suspension filing for the storage of 5 1/4-inch floppy discs.

The Safer system holds 80 5 1/4-inch floppy discs. Designed and manufactured in the UK, it is available from most micro suppliers or can be bought directly from MC2. Retail price of the unit complete with lockable cabinet, catalogue reference index and suspension clips is £39.50.

MC2 (CW), 262 The Broadway, London SW19 1SB. Tel: 01-540 9370.

WP for detailed reports

A WORD processing system which is tailored to the needs of the engineering industry is available from the recently-formed computer applications division of Yard.

The system comprises a computer from Digital Equipment's PDP-11 range, running under the RSTS/B or CTS-500 operating systems; a visual display unit (the software has been developed around the VT52 and VT100 displays); a letter quality printer; and a purpose-built software package, designated Rpts.

Rpts enables highly technical reports to be produced, making it

suitable for the engineering, scientific and industrial sectors. The software has been developed by Yard, originally for its own engineering requirements. It is aimed at users who produce long, detailed reports or booklets.

Any company already utilising a PDP-11 computer only needs the software.

Rpts offers a wide range of typographical, format and text editing facilities including automatic pagination and page headings.

Yard (CW), Charing Cross Tower, Glasgow G2. Tel: (041) 204 2757.

Is inadequate back-up giving you a false sense of security?

by John Kavanagh

THERE is something about computer cables that mice find irresistibly tasty. They revel in the wide open spaces beneath the computer room's false floor, nibbling at the cable coverings until one gorges its way right through to the wire.

The result is a little furry rodent with its legs in the air — and a string of disc drives or a complete computer system dying suddenly in mysterious circumstances.

This scene is painted by Stephen Hitchcock, marketing manager at Unilever Computer Services (UCSL), to show that although data processing managers might

think they are safe with their standby generators and fire extinguishing equipment there are 101 unexpected little things that can bring a complete installation to a standstill.

Losing the computer can almost be as frighteningly final as having a life support system switched off, says Hitchcock. A US survey shows that if a financial institution such as a bank loses its data centre it can continue to run its essential functions for just two days.

In other words, if the computer centre is burnt down on Monday the company could be out of business by Wednesday. Banks are special cases — but the survey also shows that the average for all industries is less than one week. Although there is greater awareness of the need for standby facilities, too many installations are in danger of being caught out by "totally inadequate" arrangements, says Hitchcock.

The most common arrangement is the frozen standby. This is

where two companies near to each other and with similar configurations enter a mutual aid agreement.

Hitchcock dismisses such arrangements completely: "This is useless because anyone with a well-organised installation is going to be using expensive capital equipment to the full. It just won't have spare capacity to help out its neighbour. Is it really going to take on half or even a quarter of its partner's work for weeks on end if there is a disaster?"

"This is a totally superficial solution. All it provides is a false sense of security."

Another arrangement, the cold standby, involves portable or static air-conditioned computer rooms without computers. Some organisations have their own, others have contracts with companies offering static computer rooms complete with standby generators, modems and furniture or portable rooms, erected within a week.

The advantage here is low cost: an "insurance premium" of up to £7,000 a year.

But Hitchcock points to a disadvantage: "Equipment manufacturers usually bend over backwards to provide replacement machines but it still generally takes between two and six weeks. By that time you can be out of business."

A warm standby arrangement is like a conventional time sharing bureau service. When disaster strikes the user can get on the machine quickly but only gets a share in a remote machine run by another company, without total control over the workload or security. The equipment configuration is unlikely to match user requirements exactly.

"This is fine for running one or two standalone applications, for coping with workload peaks and for conversion in readiness for a new machine. But it isn't a solution to a disaster," says Hitchcock.

Some companies have gone the whole hog and installed exact copies of their production mainframes and peripherals as standby machines. "This is great — but to keep costs down they put the two machines in the same building, usually in the same computer room," says Hitchcock. "We call this 'burnt standby' because if the main computer goes up in smoke so does the back-up machine."

Bureaux like UCSL claim to offer a "pleasantly hot" service. UCSL's is an immediate standby service to IBM users in the form of fully equipped computer centres, complete with large, "empty" mainframes.

Members of the UCSL Back-up Club which are hit by disaster mount their own operating systems and applications software, configure the equipment as they wish and run the installation themselves. The arrangement is part of UCSL's standard bureau service.

Hitchcock further claims UCSL's service is unique as the company constantly upgrades its machine configurations in line with changes made by the Back-up Club members at their own installations.

In addition, UCSL was one of the first customers of British Telecom's new Overlay digital transmission service, which guarantees very fast connection of high-speed data and voice communications.

With a hot service the customer's staff can go to the standby site as soon as a disaster strikes and simply take it over. Live systems can be serving as soon as operators arrive and load their operating system and programs. The centres normally include furnished offices with telephones, communications equipment and in some cases local display terminals and printers.

UCSL encourages customers to take the disaster business very

seriously. They must have specific procedures covering everything from the periods at which files are copied to the naming of the person responsible for telephoning for the standby service if it is needed.

UCSL's service has been set up in response to a new attitude towards back-up, sparked off by the extension of computing to all parts of many companies, according to Hitchcock.

"Three-quarters of the installations we talk to are now active, concerned about standby because they see that more and more departments are coming to rely on computing in their day-to-day operations," he says.

"The ultimate is where the chairman gets his own colour graphics terminal. This is something of a body blow to the community of data processing managers because every time it hardware hiccups the chairman knows."

However, the hazards have changed much over the years. They range from hardware and air conditioning failure to floods, terrorist sabotage and aviation disasters. In between there are vandalism by staff or outsiders, structural damage to the building, perhaps caused by renovation or vibration from a busy road nearby, a fire caused by carelessness in the stationery store or operators' room, or industrial action by computer staff or suppliers.

"The board of directors is tempted to regard machine room collapse as coming from a Hollywood-type epic disaster, with a probability equally remote," says Hitchcock. "But computers are immensely sensitive creatures and it is the silly little things that cripple them: a leaky roof, a broken fan belt on the standby generator, a leak in the IBM mainframe cooling system — or a hungry mouse."

"Every quarter we spend two days on a full boat-drill at each Back-up Club member. And if they get a new version of the operating system or tinker with it themselves they are obliged to come and test it on our equipment. We've been in the bureau business for 13 years and we know just how much the business depends on top-class contingency procedures."

Hot services cost around £20,000 a year. "One of the building societies has said that its computer centre was burnt down it would lose customers for good," says Hitchcock. "And those customers would be lost for ever."

"Any big company will lose millions of pounds a day. With back-up they will probably be able to get substantial cuts in their premium payments to their insurance companies."

UCSL is increasing the number of standby computer centres in line with the risk. But Hitchcock is still trying to convince large, experienced installations which believe remain self-sufficient, to take on the service.

"Every 30 minutes somewhere in the UK a crucial computer bursts into flames, leaks, floods, grinds to a halt or grinds to a standstill," he claims. "While IBM, ICL and the others strive to give more bang per byte it's all rather pointless when the fuse blows and suddenly the computer is in the fire."

"And it's no good just putting down a few mousetraps."

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Computer Weekly TOP JOBS

Announcing a new prestigious section for senior level computer appointments

Computer Weekly is to introduce a new feature into the appointments section of the newspaper to accommodate senior level appointments with a basic minimum salary of £16k. The new section will be headed "Top Jobs" and will start with issue of September 9.

Computer Weekly carries a large volume of appointment pages every week. Now a special section for senior appointments will enable readers to locate suitable job opportunities more conveniently. At the same time, this new facility will provide advertisers with the option of securing a premier position without extra cost.

One of the special but important features of this new section is that only those jobs offering a basic minimum salary of £16k will be eligible for inclusion in "Top Jobs". This restriction will add considerable prestige to the section and the positions advertised.

Computer Weekly provides the most comprehensive news coverage of computer users and the computer industry. Surveys have shown the newspaper to be the most widely read computer publication in Britain. With a circulation of over *100,000 every week — 32% at senior/managerial level — Computer Weekly is your best choice for all computer vacancies, as well as those important Top Jobs.

Because of the strict salary level restrictions we are enforcing, and the subsequent advanced production arrangements necessary, all space reservations for the "Top Jobs" section must be received in London by 4pm Friday before publication date.

To reserve space please phone Shobhan Gajjar (Direct Clients) or Julie McNally (Consultancies) on (01) 661 0121.

* Circulation ABC January-June 1982 — 100,283

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Further particulars may be obtained from The Deputy Secretary (Personnel), University of Surrey, Guildford, Surrey GU2 5XH or by telephoning Guildford 571281 extension 776. Applications in the form of a curriculum vitae (3 copies) and including the names and addresses of two referees should be sent to the above by 17th September 1982 quoting reference 92/C.W.

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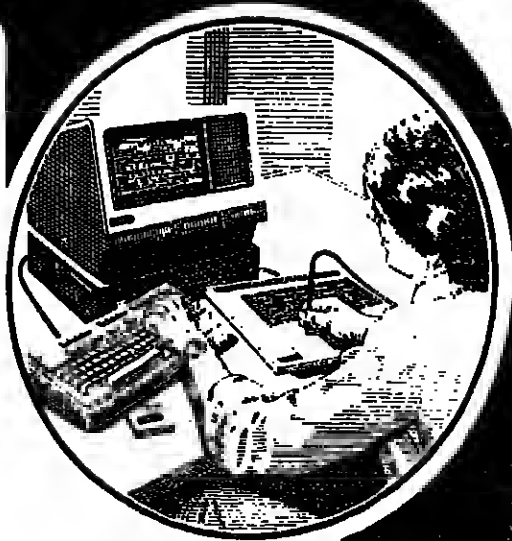
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TRAINING CONSULTANTS - PROGRAMMING

Required Skills: Minimum 2 years experience in a large IBM mainframe environment plus at least one year teaching/training experience. Knowledge of MVS JCL TSO/SPF and Utilities, together with PL1 Cobol and Fortran. Must be able to work with students for whom English is a second language.

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Required Skills: A minimum of 5 years experience in a large IBM environment preferably MVS JES 2. The ideal candidates should have proven experience in structuring large classroom training programmes and monitoring on the job performance.

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Required Skills: At least 2 years System Documentation. Writing experience plus one or more years Programmer/Analyst experience.

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Required Skills: MVS JCL Writers for Conversion and Automated Scheduling project. Systems programming background desirable.

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Required Skills: MVS JCL TSO/SPF VSAM. Knowledge of Minicomputers and experience in Engineering, Graphics or Operations Research.

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Required Skills: At least 3 years Systems Programming with experience in ACF 2 or Computer Security Systems. The work will involve the evaluation, co-ordination and development of Security Systems for Distributed Computer environment using ACF 2. Experience of user training would be useful.

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1. Support Engineer - Ref: MR1076

To work as part of a team maintaining a telephone exchange simulation system. 3 years plus knowledge of digital equipment is essential and analogue experience would be useful. Possibility to move ultimately into design applications exists.

2. Design Engineer - Ref: MR1077

To work as part of a team developing a local area network system. The successful candidate will have particular responsibility for the development of device interfaces, e.g. terminals and controllers. Ideally a minimum of 3 years' experience in microprocessor applications, preferably with some software knowledge, should be held and also, candidate should be willing to become involved in writing software using both high and low level languages. Software training will be provided where required.

3. Senior Technical Author/Supervisor - Ref: MR1067

To be responsible for a team of three writing User Design manuals for telecommunications applications. The successful applicant will have several years' background in either software or electronics together with sound writing and supervisory experience. He should also have the aptitude to promote technical publication services within the company.

4. Software Engineers - Ref: MR1079

To work on a variety of new projects with a rapidly expanding minicomputer manufacturer. Applicants should have a minimum of 3 years' experience, together with an enthusiastic and committed approach to software development.

5. Technical Authors - Ref: MR1054/5

To write User Manuals for the above client for 41 and as part of a small, select, team, design positions require a minimum of 2 years' writing experience, preferably within a software environment. However, consideration will be given to programmers with a flair for writing. Senior positions require a minimum of 4 years' experience. Successful applicants will be expected to work largely on own initiative although, of course, whilst liaising with other team members and to link of staff.

6. Training Officers/Instructors - Ref: MR1075

Here our client, an independent training organisation, requires instructors for both their Manchester and London centres. Applicants need not be already involved in training but, must have experience in one of two areas:

- Chica 5 years in Systems/Business analysis - covering commercial DP, including Systems Investigation, Analysis and Design
 - Chica 3 years pure programming (i.e. with some analysis content) - covering commercial programming, mainly COBOL, in an IBM or similar byte-oriented environment
- These positions require applicants to be well presented and mature in outlook and should appeal to those who enjoy the communication and problem-solving aspects of training.

7. Electronic Engineers - Ref: MR1078

To work on a variety of Marine projects. Applicants should have a minimum of 2 years' experience of product design and be prepared to work as part of a team. Opportunities for further training exist.

Outlined above is a selection of requirements in UK at time of going to Press. New ones constantly arise so, if you have expertise to offer in absolutely ANY field connected with Data Processing and/or Electronics please submit your cover resume to the address below - as we may well then already have the career opportunity you seek, in UK or Overseas.

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Applications are invited from experienced systems analysts for this post in the Computer Section of the Executive's Office. The successful applicant must be qualified in either British Computer Society or Management Services Institute.
The installation consists of both an ICL 2900 and ME29 computers using DME, TME, and PMS. The successful applicant will be mainly responsible for development of office information systems using word processors, ICL 7802 equipment and microprocessors. Experience of office procedures and business procedures will be welcomed.
Application forms from the Director, Management Services, Municipal Buildings, Knowsley L32 1TX, Tel: 061-545. They should be returned not later than

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BUPA run a number of applications utilising minis and large IBM and IBM compatible mainframes. A range of software is employed, including OS/VS1, VM, CMS, CICS, Adabas, Librarian and VSAM. Programming languages used include PL1, COBOL, Assembler and Natural.

The range of applications being supported, under development and at feasibility stage, will be outlined in the BUPA Company Profile which will be sent to responding applicants.

Vacancies currently exist for **ANALYSTS** and **PROGRAMMERS**, at various levels of seniority, to join one of a number of project teams.

A variety of career paths are open within BUPA, and Project Eighty Three has the facility for appointees to gain experience in more than one project area to help career development.

The benefits package provided by BUPA is excellent, and includes mortgage subsidy, season ticket loans, subsidised restaurant and of course... free BUPA!

Full details on BUPA and on the positions themselves have been prepared, and will be sent, with an application form, to all responding applicants. To receive these details please either telephone the number below or return the coupon. Initial interviews can be conducted up to 8.00pm Monday to Friday, or on Saturday mornings, by appointment.

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The position involves support to internal software personnel, user liaison, as well as contributing to the

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development of new software packages. Success in this position will be determined by exposure to varied functions, a willingness to travel within the country, and gaining satisfaction from both developing and sharing your knowledge.

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To arrange an interview in London, Birmingham or Manchester, call our Advising Consultants at SCR International, Martin Stainthorpe or Graham Utton on 021-236 3781 (24 hour answering service) or 021 744 1862 for Martin Stainthorpe during evenings, 7-9 pm, or weekends.



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To assist in these developments the company wish to recruit a communications specialist who has experience of a large IBM mainframe environment, ideally with exposure to VTAM and MCP. Additionally, knowledge of some of the following facilities would be beneficial: x 21, x 25, packet switching, data snooping and data stream.

You will be involved in the installation of a national communications network and local area networks using a range of micro computers, whilst a very

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For further details of this excellent position please contact Peter Brown on 061-491 1666 (during office hours) or 061-724 6376 (evenings/weekends) or write to him at Computer People North, Sovereign House, Stockport Road, Cheshire SK5 2EA.

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IBM OS or MVS
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The technical management of the Companies is sound. The sales effort is weak. The potential for the businesses is enormous and they in turn form part of a highly respected computer services group.

Candidates must have:

- Directly relevant experience of computer services Company management.
- A strong sales and sales management background.
- Flair, ideas and a preparedness to identify and introduce new products and opportunities.
- Accountability for the Companies' achievement of profit and revenue goals.

This role will appeal to an ambitious, sound Manager, 30-40, who will be capable of assuming further personal responsibility inside 2/3 years, and whose commitment and ability to produce results will be rewarded by genuine career development and personal opportunity.

CONTACT: **DAVID WADE**, Director, as advisor to the Client Company on this appointment.
ON 021-236 3781 (24 hour answering service)
or 0785 660051 (evenings & weekends).

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Operations Supervisor **to £12,000**
To control the operations and data control functions, ideally you will have DEC VAX and IBM S/34 experience. Knowledge of VAX VMS and S/34 SSP would be useful. Good knowledge of operating system and utilities and an understanding of data communication is required.

Operations Analyst/Systems Programmer **to £10,500**
You are a competent systems programmer, ideally with in depth experience of DEC VAX. You will provide technical support for the set-up and tuning of a new central computer. Additionally you will undertake one of the client's Senior Analysts, to progressively assist in:
(a) Current operating systems tuning and operations support
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operating a 2 shift system, you'll be expected to play an active role in the development of our DP facility and in the formulation and maintenance of operating procedures.

Our need is for someone with a minimum of 5 years' experience in Operations — 2 years of which should have been gained in a supervisory capacity. Proven experience with IBM hardware and DOS/VSE is essential together, ideally, with a sound operating knowledge of CICS VS.

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IBM COBOL, CICS & DL1
IBM PL1, various requirements
IBM B100, DPPX, DPCX, COBOL
IBM SYSTEM 34, RPGII
IBM IMS DB/DC COBOL
IBM CICS, VTAM, COBOL/ASSEMBLER
IBM MARK IV
IBM JCL MANAGER
IBM System Programmers VM/CMS
IBM Assembler on-line DATABASE & TASK MASTER
IBM SYSTEM 38 RPGII
HONEYWELL DPS4, IPS, COBOL
HONEYWELL OPSB COBOL PROGS
ICL ME28 COBOL
ICL VMEB, IDMS
ICL Applications Manager
ICL SYSTEM 10 ASSEMBLER
ICL SYSTEM 26 ASSEMBLER
PDP RSX11M BASIC + or BASIC + 2 (some with DATABOSS)
PDP RSX11M BASIC + 2
VAX BASIC
VAX SYSTEL
VAX COBOL
HP3000 COBOL
WANG COBOL or BASIC
PASCAL PROGRAMMERS
TANDEM, any levels (URGENT)
CORAL 68
VENTEK DATAPOINT, DATABUS
CIS COBOL
DATA GENERAL INFOS COBOL
DATA GENERAL/BUSINESS BASIC
Hardware Engineers
ABS Multibus Simple
SMI CMC REALITY packages
SYSTEM X EXPERTISE

Contact: STEVE WHITING, STEVE CASEY
DEREK WADHAM, DAVE PEART
DAVE LONKHURST, KEITH TAYLOR
PETER HOLLIDAY, MARK ATKINSON
or SANDRA CAREY

OVERSEAS 0252 516141 SAUDI ARABIA

Contact: BILL EVANS
6 months-plus assignments commencing
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ANALYST OFFICE AUTOMATION:
Word processing experience, e.g. IBM, WANG or
various personal computers

ANALYST - SMALL BUSINESS COMPUTERS:
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GERMANY

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VAX VMS OPS
ICL GEORGE 3 OPS
ICL CME

MIDLANDS & NORTH 021-742 4431

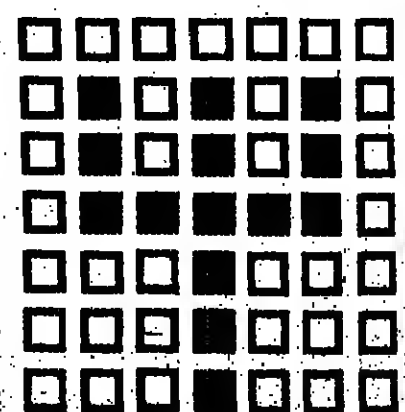
ICL VMEB COBOL IDMS or TPMS
IBM, PL1, all levels
IBM CICS OL1 COBOL
IBM COBOL with IMS
IBM SYSTEM 34 RPGII A/P - Merseyside
UNIVAC 1100
UNIVAC 1100 DMS, TIP, System Programmer
IDMS DATABASE Administrator
Analyst - Various Systems
PDP RSX11M BASIC + or BASIC + 2
PDP RSX11M BASIC +
FORTRAN PROGRAMMERS
OS MVS CICS JCL WRITER
ICL VMEB COBOL IDMS or TPMS
ICL VMEB OPS
Contact: NEIL SMITH or KAREN LONGCROFT

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OPERATORS

BEDFORDSHIRE SOFTWARE SPECIALISTS

A major communications company requires specialists for the development of communications systems. Interested candidates should have experience within the following areas: Package Switching, Private Networks, X25, Local Area Networks, Military Projects, Operating Systems, Languages/Compilers and Device Drivers. Ref. CW 26/1

ESSEX SOFTWARE ENGINEERS

Our client is involved in the design of fully integrated engineering and Software Systems in their Defence and Communications Industry. They require immediate Software Programmer with a minimum of 2 years' experience including Assembly in a Mini/Micro environment. The company offers excellent career development within Real Time Systems together with a generous relocation package if required. Ref. CW 26/2

SCIENTIFIC PROGRAMMERS LONDON

An expanding division of a well-known Software House have immediate openings for the following projects: Real Time Simulation, Process Control, CAD, Command + Control and Mathematical Modelling. Successful candidates should have one or more of the following: Minimum 2 years' Software Programming, PDP11, RSX11M, VAX 780, ASSEMBLER, CORAL 68, RTL2 and FORTRAN. Ref. CW26/3

SWITZERLAND GERMAN-SPEAKING SOFTWARE ENGINEERS

A major communications company requires additional German-speaking programmers, to develop new communications Software. Candidates should have a minimum of 2 years' Real Time experience in this field. Ref. CW10/4

HARDWARE ENGINEER BEDFORDSHIRE

Satellite communications is our client's speciality. They currently wish to employ a Hardware Engineer with a minimum of 3 years' experience in industry. A degree background is necessary plus some involvement in Software Hardware experience of TTL and ECL design on micro would be ideal. Ref. CW26/5

ASHFORD SOFTWARE ENGINEERS

A company dedicated to Communications Systems is currently seeking engineers with a variety of the following:

- IBM/ICL PROTOCOLS
- DEC/RX11/VAX
- CORAL
- NETWORKS
- EMULATORS
- X25
- DEFENCE
- INTEL 8086
- PROCESS CONTROL

Ref. CW26/6

SYSTEMS ENGINEERS IN EUROPE - HOLLAND

One of the UK's largest Systems Consultancy and Implementation organisations offers an exceptional combination of involvement, experience and commitment in a number of specialised application areas.

They are looking for System Engineers to undertake an initial assignment in Europe working at the design stage of a Real Time project.

- Candidates should have:
- A minimum of 6 years' experience
 - Specialised knowledge of Fire Control Systems
 - Guidance Systems
 - Radar/Sonar
 - Navigation or EW Systems

Ref. CW26/7

SYSTEMS CONSULTANTS LONDON

Our client, a leader of International Business Communications requires additional Systems Consultants to work from their London base with occasional overseas travel possible.

Systems Consultants will be involved in System Design for a variety of industries using new technology involving video communications on Real Time Systems.

Candidates should have experience of DEC, VMS or RSX11 ability to design Software for a wide range of terminals and networks. Ref. CW26/8

SOFTWARE ENGINEERS MIDDLESEX

Our client applies traditional engineering disciplines to Software Design and Production. Their applications include Weapons Guidance, Satellite Communications, Mathematical Modelling and Systems Simulation.

Candidates with compatible experience to the above applications will gain a remarkable breadth and depth of knowledge, not just on a theoretical basis but through practical experience, and close involvement in some of the most advanced Real Time Systems anywhere. Ref. CW26/9

COMMAND & CONTROL LONDON

One of the largest international Software houses with their headquarters in London have a requirement for Software Designers with a minimum of 1 year's experience in Real Time Systems Design, candidates should have a degree plus experience in one or more of the following:

- Defence Systems
- Mascot
- PDP 11
- CORAL
- VAX
- INTEL 8086

Ref. CW26/10

All the above appointments involve permanent positions and carry a wide range of salary and conditions dependent on location and experience. In the first instance please send us a copy of your CV (alternatively telephone for an application form) so we may discuss your application in confidence with our client on your behalf.

DATAMATICS

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Datamatics, Freepost, Surbiton, Surrey KT6 5BR

10711

EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our permanent or contract staff, please contact us in respect of these and future opportunities.

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COBOL, OS, TSO/SPF
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Senior Analyst
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Programmer

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USA

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COBOL, CICS, DL/1

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10708

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Suitably qualified candidates are urgently required in the following areas:

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SYSTEMS ANALYSTS
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PROGRAMMERS

Our company uses an IBM 4341 group 2 computer (VM/SP: DOS/VSE: DSM/CICS/VSE: DL/1: ACF/NCP: ACF/VTAM COBOL, RPG, APL, FORTRAN)

Attractive Remuneration Package

Please write with full CURRICULUM VITAE to: The Trinidad and Tobago High Commission, Consular Section, 42 Belgrave Square, London SW1 by September 6th, 1982.

Late applications will be accepted at: TRINIDAD AND TOBAGO TELEPHONE CO. LTD. (ATT. J. E. KASSIE), PO Box 917, 65 Abercromby Street, Port of Spain, TRINIDAD.

10680

IBM Computer Operators

Fluor (Great Britain) Limited is part of one of the world's most successful companies in the engineering and construction industry, with particular emphasis in the energy field. Our European Data Centre is currently based on an IBM 4341 - 2 using MVS/JES-2, TSO, VSPC, IMS and NJE software. The associated network has RJE and interactive terminal links to our offices on the Continent and in the U.S.A.

The planned expansion of the Company's network requires the introduction of a 3 shift system. We, therefore, have vacancies for the following positions:

Senior Computer Operator

Candidates should be in their mid to late 20's with 3-4 years experience working in an IBM MVS/JES-2 environment, preferably in a supervisory role.

Computer Operator

Candidates should have at least 18 months operating experience of the above system.

Salaries will be negotiable according to age and experience, plus relevant shift allowance.

If you would enjoy the challenge and scope available within our Company, please send your c.v. with day time telephone number to the Personnel Officer, Fluor (Great Britain) Limited, Fluor House, Euston Square, P.O. Box 309, London, NW1 2DJ. Alternatively, telephone 01-388 4222 ext 4206, for an application form.

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- DISTRIBUTED DATA PROCESSING
- DATA COMMUNICATIONS
- AUTOMATED OFFICE FUNCTIONS

And will be marketed initially through established Systems/Software consultants and major users. Worldwide product support is being established in the UK now and these three executives must have the potential to lead a fast growing team in the near future. If you are looking for a challenge and a career move call now - Ref. 10715

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10698

UNIVERSITY OF OTAGO

Dunedin, New Zealand

SENIOR SYSTEMS ANALYST

This senior position in the Data Processing Section of the Registry involves development and maintenance of data processing systems essential to the administrative function of the University. The appointee would also be required to evaluate present systems with a view to redesigning an on-line environment.

Salary within the range NZ \$15,210 - \$21,388 depending on qualifications and experience.

Further particulars including method of application are available from the Association of Commonwealth Universities (A.C.U.), 39 Gordon Square, London WC1H 0PF, or from the Registrar of the University, P.O. Box 66, Dunedin, New Zealand. Applications should be submitted as soon as possible.

10691

THE UNIVERSITY OF MANCHESTER

SENIOR LECTURER IN COMPUTATIONAL METHODS IN MEDICAL SCIENCE

Applications are invited for this post, to be held for 5 years, from candidates with teaching experience in universities or polytechnics and with a strong background of data processing in business and administration. The appointee will develop and manage the service, research and educational aspects of medical computing throughout the Manchester Central District. Salary range p.a. £12,200-£16,100.

Particulars and application forms available by September 1982 from the Registrar, The University, Oxford Road, Manchester M13 9PL. Closing date 10/10/82.

10690

PROGRAMMERS IBM/COBOL/Insurance Banking SENIOR PROGRAMMER PL1/Oseba/CICS	to 10K Northants/London/West Sussex to £15K Croydon/Beds./Berks
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SOFTWARE ENGINEERS FERRANTI/ARGOS	to £12K Berks/Essex/Surrey
HARDWARE DESIGN	to £12K Home Counties
SYSTEMS ANALYST & PROGRAMMERS On Line exp/VMEB or K/or George 3	to £11K Surrey/East Angles/Bucks
SOFTWARE DESIGNERS COBOL/PASCAL/RTL2	to 13K Sussex
SYSTEMS PROGRAMMERS Strong IBM environment preferred	to £12K London
ANALYST PROGRAMMERS ICL 285B/Database/Fortran/Pascal	to £12K London
ANALYST PROGRAMMERS Oac/Dg/Weng/Belsc/Prime	to £12K Berks/Bucks
SYSTEMS ADMINISTRATIVE HP3000	to £13K Surrey
SOFTWARE ENGINEERS RACAR/Military/ATE/CORAL Meacal/Bates	to 11K Surrey/West Country Home Counties
PRINCIPAL CONSULTANTS Commercial Software exp/Accounting qualifications Oseba General COBOL	to 15K Berks
PROGRAMMERS Database/Banking	to £14K Berks/London
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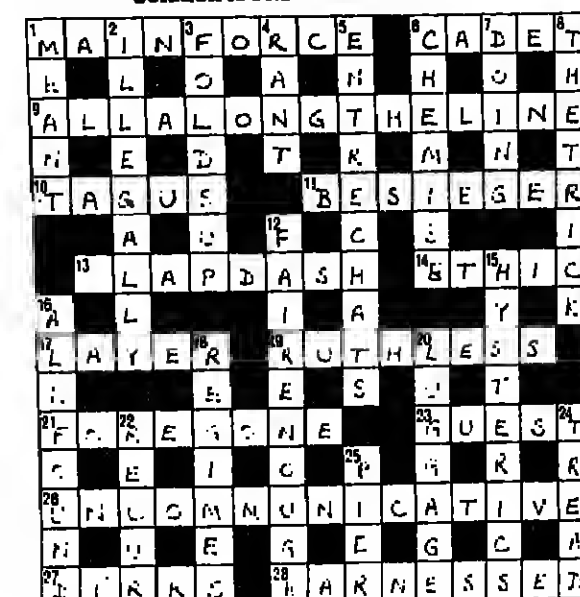
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CW 26/8

CROSSWORD

Solution to Prize Crossword No 31



A MID-GLAMORGAN reader is our £10 winner this month - he or she is called J. R. Smith and lives at Bridgend, but gave no telephone number, so we can't tell you his or her first name or job. £5 goes to Derek Mungall, freelance programmer of Bradford, and to Larry Howard, senior analyst/programmer with British Telecom.

NORTHERN REGIONAL HEALTH AUTHORITY**SOFTWARE SUPPORT PROGRAMMER (£6684-£8147)**

The above vacancy is within a team of 4 specialist support staff who provide software and operational support to mainframe, mini and micro computer users in the Northern Region.

The Authority has installed an ICL 2988 running under George 3 and DME and longer term plans will probably include VME working.

Applicants must have a good working knowledge of George 3 together with 2 years Cobol experience and should be able to demonstrate the ability to provide the wide range of support that is required from members of the Software Section.

Application forms and job descriptions available from Regional Personnel Officer, Northern Regional Health Authority, Benfield Road, Newcastle upon Tyne NE6 4PY.

Closing date 10 September 1982.

(0888)

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(0887)

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Based at Acton Town Hall

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To work as a member of a project team responsible for all accounting systems. Ideally a minimum of two years' experience of Cobol or Assembler the required plus previous systems involvement but consideration will be given to skilled programmers who wish to move towards systems analysis.

The installation has an IBM 3031, running under VM AND DOS/VSE. Software includes CICS, DLT, Easytrieve, On-Line Librarian APL, etc.

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Application forms available from the Personnel Section, Room 4202, Town Hall Annex, Ealing, W5 2BY. Tel. 01-575 2424. Ext. 3360, out of hours answerphone 01-840 1085.

Please quote reference 987 FD.

Closing date: 10-9-82.

Ealing
London Borough

(0884)

**EXPERIENCED PROGRAMMERS**

ENGLISH CLAYS LOVERING POCHIN & CO. LTD., the major operating company of the English China Clays Group, wishes to recruit Experienced Programmers for its expanding Data Processing Section located at the Group's Head Office at St Austell, Cornwall.

The computer equipment includes an ICL 2988 (with DME) and 3 ICL ME28a (with TME-TP). There are a growing number of computer terminals and micro computers used within the Company.

Candidates must have had a minimum of 3 years' proven programming experience, preferably to include working with ICL machines and using COBOL.

There are opportunities for those who demonstrate the ability to develop towards systems analysis.

Conditions of employment include contributory Pension, non-contributory Life Assurance and Profit Sharing Scheme and 5 weeks' annual holiday; assistance will be given with re-location expenses.

Applications in writing, quoting Reference 31S to:

The Personnel Manager
John Keay House
St Austell
Cornwall

(0888)

Huddersfield Polytechnic

Department of Computer Studies and Mathematics

RESEARCH ASSISTANT

Salary: Researcher 'A' Scale £4880-£6615

Applicants are invited for a three-year appointment, supported by SERC, to work on a project concerned with the use of dialogue for the man-machine interface.

Candidate should have a good honours degree in computing and preference will be given to those with experience of UNIX and PASCAL. Closing date for applications is 5 September, 1982.

Further details and application forms are available from the Personnel Office, The Polytechnic, Queensgate, Huddersfield HD1 3DH. Tel: 0484 22288 ext 224.

(0884)

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Strict confidentiality assured.

(0824)

DATABASE SYSTEMS DESIGNER
Circa: £10600

Due to expansion Barclays Bank wish to recruit an experienced person to participate in the design, development, implementation and support of DB/DC COBOL applications.

The successful applicant will have a minimum of 3 years working in Database Administration department with practical experience of systems design and analysis together with essential personal qualities to communicate with and support our various project teams.

Applicants should, ideally, be educated to degree level or equivalent and must be self-motivating and experienced in the following areas:

Large/Complex Database Design, MFS/BTS,
Data Dictionary, IMS Utilities, COBOL,
VSAM, TSO/SPF, MVS/JCL

Barclays Bank offers the successful candidate an opportunity to remain at the forefront of IMS technology within the field of Continuous Operating, Fast path and database recovery procedures.

The IMS systems will run under MVS/XA on IBM 3081 Machines.

The normal fringe benefits associated with working for a major Bank will apply, including a non-contributory pension scheme, subsidised restaurant, excellent sports and social facilities and a staff profit-sharing scheme.

Application Forms may be obtained from:

Ken Colebrook, Manager (Personnel),
Barclays Bank PLC,
Management Services Department,
Radbrooke Hall, Nr Knutsford,
Cheshire, WA16 9EU.
or Telephone Knutsford (0565) 3888 Extensions 2743/2748



Rediffusion Computers Limited, world leaders in Videotex and Advanced Office Systems, are looking for staff to join their Product Support team based at Crawley.

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- * Maintenance of firmware and diagnostic programs.
- * Advising on improvements in support methods and associated programs.

Engineer

Required to strengthen the existing group undertaking post-design responsibility for the hardware of the company products.

- * Identification and rectification of design faults.
- * Liaison with internal departments on hardware support methods.
- * Evaluation of new peripheral units.
- * Liaison with vendor companies.

Ideally, applicants should have at least 3 years' experience in the computer industry or a related field with a relevant degree or HNC qualification.

These are senior positions within a small team, providing excellent career prospects, with an attractive remuneration package. Relocation assistance will be provided where appropriate.

Please write with full C.V. to Rob Wilson, Personnel Officer, Rediffusion Computers Limited, Kelvin Way, Crawley, West Sussex RH10 2LY. Telephone Crawley (0283) 3121 ext. 278.



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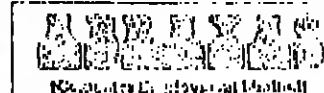
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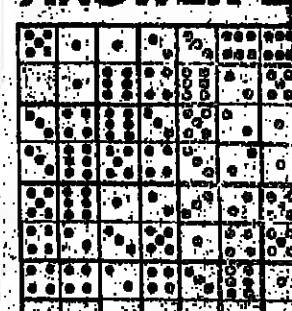
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